NCBI

Nucleotide

| PubMed | Nucleotide | Protein | Genome | Structure | PMC | Taxonomy | OMIM | Books |

Search Nucleotide ▾ for [   ] Go Clear

Limits   Preview/Index   History   Clipboard   Details

Display GenBank ▾ Show 5 ▾ Send to ▾   Hide: ☐ sequence ☐ all but gene, CDS and mRNA features

Range: from begin   to end   ☐ Reverse complemented strand Features: [+] Refresh

☐ **1: AE014137.** Reports ...[gi:21903746] The record has been replaced by AE014074

Comment   Features   Sequence

```
LOCUS       AE014137              50389 bp    DNA       linear    BCT 19-JUL-2002
DEFINITION  Streptococcus pyogenes MGAS315, section 2 of 37 of the complete
            genome.
ACCESSION   AE014137 AE014074
VERSION     AE014137.1  GI:21903746
KEYWORDS    .
SOURCE      Streptococcus pyogenes MGAS315
  ORGANISM  Streptococcus pyogenes MGAS315
            Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
            Streptococcus.
REFERENCE   1  (bases 1 to 50389)
  AUTHORS   Beres,S.B., Sylva,G.L., Barbian,K.D., Lei,B., Hoff,J.S.,
            Mammarella,N.D., Liu,M.-Y., Smoot,J.C., Porcella,S.F.,
            Parkins,L.D., McCormick,J.K., Leung,D.Y.M., Schlievert,P.M. and
            Musser,J.M.
  TITLE     Genome sequence of a serotype M3 strain of group A Streptococcus:
            Phage-encoded toxins, the high-virulence phenotype, and clone
            emergence
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 99 (15), 10078-10083 (2002)
REFERENCE   2  (bases 1 to 50389)
  AUTHORS   Beres,S.B., Sylva,G.L., Barbian,K.D., Lei,B., Hoff,J.S.,
            Mammarella,N.D., Liu,M.-Y., Smoot,J.C., Porcella,S.F.,
            Parkins,L.D., McCormick,J.K., Leung,D.Y.M., Schlievert,P.M. and
            Musser,J.M.
  TITLE     Direct Submission
  JOURNAL   Submitted (14-JUN-2002) Laboratory of Human-Bacterial Pathogenesis,
            Rocky Mountain Laboratories, NIAID, NIH, 903 South Fourth St.,
            Hamilton, MT 59840, USA
COMMENT     [WARNING] On Jan 26, 2006 this sequence was replaced by
            gi:21905618.
FEATURES             Location/Qualifiers
     source          1..50389
                     /organism="Streptococcus pyogenes MGAS315"
                     /mol_type="genomic DNA"
                     /strain="MGAS315"
                     /serotype="M3"
                     /db_xref="taxon:198466"
                     /note="group: A"
     gene            215..1507
                     /gene="purB"
                     /note="synonym: SpyM3_0030"
     CDS             215..1507
                     /gene="purB"
                     /note="best blastp hit: gb|AAK33173.1| (AE006476)
                     adenylosuccinate lyase [Streptococcus pyogenes M1 GAS]"
                     /codon_start=1
                     /transl_table=11
                     /product="adenylosuccinate lyase"
                     /protein_id="AAM78637.1"
```

```
                          /db_xref="GI:21903747"
                          /translation="MIERYSRPEMAAIWTEENKYRAWLEVEILADEAWAELGEIPKED
                          VAKIREKADFDIDRILEIEQETRHDVVAFTRAVSETLGEERKWVHYGLTSTDVVDTAY
                          GYLYKQANDIIRRDLENFTNIVADKAREHKMTIMMGRTHGVHAEPTTFGLKLATWYSE
                          MKRNQERFEHAAAGVEAGKISGAVGNFANIPLFVEQYVCDKLGIRSQEISTQVLPRDL
                          HAEYFAVLASIATSIERMATEIRGLQKSEQREVEEFFAKGQKGSSAMPHKRNPIGSEN
                          MTGLARVIRGHMVTAYENVSLWHERDISHSSAERIITPDTTILIDYMLNRFGNIVKNL
                          TVFPENMMRNMESTFGLIYSQRVMLKLIEKGMTREEAYDLVQPKTAYSWDNQVDFKPL
                          LEEDTKVTSCLTQEEIDELFNPIYYTKRVDDIFKRLGI"
gene                      1638..2549
                          /gene="SpyM3_0031"
CDS                       1638..2549
                          /gene="SpyM3_0031"
                          /note="best non-GAS blastp hit: gb|AAK76056.1| (AE007488)
                          transcriptional regulator PlcR, putative [Streptococcus
                          pneumoniae TIGR4]"
                          /codon_start=1
                          /transl_table=11
                          /product="conserved hypothetical protein"
                          /protein_id="AAM78638.1"
                          /db_xref="GI:21903748"
                          /translation="MLEHFGGKVKVLRLEKRISREDLCGDESELSVRQLARIELGQSI
                          PSLSKVIFIAKALNVSVGYLTDGADLELPKRYKELKYLILRTPTYMDDGKLQVREEQF
                          DEIFEDYYDKLPEEEKVAVDIIQAKFEVYQTGDINFGYSILKEFLPQLKRKSIYNLNE
                          LLLIDLYLIILVVSHFSDDIFDVQFYEEITESMLKQHNNLSLEDLFLLNNILLSCADT
                          YIRLKMFGHLKETLQLSHFIMSTIQDFQKMPMYCMYEWKLSIFYLKDINRARNYFEQS
                          ILFTQMTGDTYLVQKLRGEWNKDIHYI"
gene                      2769..3767
                          /gene="ruvB"
                          /note="synonym: SpyM3_0032"
CDS                       2769..3767
                          /gene="ruvB"
                          /note="best blastp hit: gb|AAK33175.1| (AE006476) putative
                          Holliday junction DNA helicase, subunit B [Streptococcus
                          pyogenes M1 GAS]"
                          /codon_start=1
                          /transl_table=11
                          /product="putative Holliday junction DNA helicase subunit
                          B"
                          /protein_id="AAM78639.1"
                          /db_xref="GI:21903749"
                          /translation="MARILDNDVMGNEEFSDRTLRPQYLHEYIGQDKVKEQFAIFIEA
                          AKRRDESLDHVLLFGPPGLGKTTMAFVIANELGVNLKQTSGPAVEKAGDLVAILNELE
                          PGDILFIDEIHRMPMSVEEVLYSAMEDFYIDIMIGAGDTSRSIHLDLPPFTLIGATTR
                          AGMLSNPLRARFGITGHMEYYQEKDLTEIVERTATIFEIKIDHEAARKLACRSRGTPR
                          IANRLLKRVRDYAQIIGDGIITAQITDRALTMLDVDREGLDYIDQKILRTMIEMYQGG
                          PVGLGTLSVNIAEERNTVEEMYEPYLIQKGFLMRTRTGRVATQKAYRHLGYPYQNT"
gene                      3905..4342
                          /gene="SpyM3_0033"
CDS                       3905..4342
                          /gene="SpyM3_0033"
                          /note="best blastp hit: gb|AAK33176.1| (AE006477) putative
                          protein-tyrosine phosphatase [Streptococcus pyogenes M1
                          GAS]"
                          /codon_start=1
                          /transl_table=11
                          /product="putative protein-tyrosine phosphatase"
                          /protein_id="AAM78640.1"
                          /db_xref="GI:21903750"
                          /translation="MKKVCFVCLGNICRSPMAEFVMKSIVSSDVMMIESRATSDWEHG
                          NPIHSGTQSILKTYQINYDITKCSKQITITDFNTFDYIIGMDSDNVKNLKEMSQHQWD
                          SKIYLFREGGVPDPWYTNDFEETYQLVRKGCQDWLSRLMSKEY"
gene                      4365..4766
                          /gene="SpyM3_0034"
CDS                       4365..4766
                          /gene="SpyM3_0034"
```

```
                    /note="best non-GAS blastp hit:gb|AAK76092.1| (AE007492)
                    conserved hypothetical protein [Streptococcus pneumoniae
                    TIGR4]; gb|AAL00641.1| (AE008548) hypothetical protein
                    [Streptococcus pneumoniae R6]"
                    /codon_start=1
                    /transl_table=11
                    /product="conserved hypothetical protein"
                    /protein_id="AAM78641.1"
                    /db_xref="GI:21903751"
                    /translation="MIDMQDIVKKWSITRAKLEIVSVIVILVCAISVFSVRISNKTSL
                    TYDKGRIHYTGYVINHKMNGEGKLVYPNGDIYEGTFKNGLFEGKGTFTAKTGWLYNGE
                    FHKGQANGKGVLKAKNNKVYKGIFKQGIFQK"
     gene           4763..6538
                    /gene="SpyM3_0035"
     CDS            4763..6538
                    /gene="SpyM3_0035"
                    /note="best blastp hit: gb|AAK33178.1| (AE006477) putative
                    acyltransferase [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="putative acyltransferase"
                    /protein_id="AAM78642.1"
                    /db_xref="GI:21903752"
                    /translation="MRIKWFSFVRVTGLLLVLLYHFFKNVFPGGFIGVDIFFTFSGYL
                    ITALLIDEYTKKESIDIIGFLKRRFYRIVPPLVLMILLTIPFTFLIKKDFIANIGSQI
                    TAVLGFTTNIYEILTGSSYESQFIPHLFVHTWSLAIEVHFYLFWGVFVWLLARRKETQ
                    KQLRGLLFLISLGIFAISFLSMSIRSFMTSNFSLIYFSSLSHSFPFFLGAMFATITGI
                    NETTVRFQKNVRLWPRQYVLAAMVGAFTLLLVLTVTLDFNHITTYLFGFALASLFASI
                    MIYAARVLHEQTPDVQEPKAITYIADISYGIYLFHWPFYIIFSQLMSHILAVILTVFF
                    SILFATVSYYIVEPLVQGRKPNLLGLEIDCSPYYKWIVGGTLALALLTLGTCMIAPKV
                    GKFEKQLLVSSLQQAQSNMERTHTLAAGDANALSDVGIIGDSVALRSSAAFSKIMPQA
                    QLDAAVSRNFKEAFDLFNNQIKSKSLSKTVVLAVGVNSLDNYSQAVQSFIEALPKGHR
                    LVLVSPYNAKNASQVAEARDYGLKLSKKYKYVTIADWYKVAVEHPDIWYGSDGVHYSE
                    DSQGAELYVSTIQTAVEKSAKKPAK"
     gene           6847..9489
                    /gene="adh2"
                    /note="synonym: SpyM3_0036"
     CDS            6847..9489
                    /gene="adh2"
                    /note="best blastp hit: gb|AAK76091.1| (AE007491) alcohol
                    dehydrogenase, iron-containing [Streptococcus pneumoniae
                    TIGR4]"
                    /codon_start=1
                    /transl_table=11
                    /product="putative alcohol dehydrogenase II"
                    /protein_id="AAM78643.1"
                    /db_xref="GI:21903753"
                    /translation="MTEGHNTVETTSVSVTIDALVQKGLAALAEMRKLDQEQVDYIVA
                    KASVAALDAHGELAKHAYEETGRGVFEDKATKNLFACEHVVNNMRHQKTVGIIEEDDV
                    TGLTLIAEPVGVICGITPTTNPTSTAIFKSLISLKTRNPIIFAFHPSAQESSAHAARI
                    VRDAAIAAGAPENCVQWVETPSLEATNALMNHDGIATILATGGNAMVKAAYSCGKPAL
                    GVGAGNVPAYVEKSANIRQAAHDIVMSKSFDNGMVCASEQAVIVDKEIYDDFVAEFKS
                    YHTYFVNKKEKALLEEFCFGAKANSKNCAGAKLNPNIVGKPATWISAQAGFTVPEGTN
                    ILAAECKEVSENEPLTREKLSPVIAVLKSESREDGVEKARQMVEFNGLGHSAAIHTAD
                    AELAKEFGTRIRAIRVIWNSPSTFGGIGDVYNAFLPSLTLGCGSYGRNAVGDNVSAIN
                    LLNIKKVGRRRNNMQWFKVPSKTYFERDSIQYLQKCRDVERVMIVTDHAMVELGFLDR
                    IIEQLDLRRNKVVYQIFAEVEPDPDITTVMKGTELMRTFKPDTIIALGGGSPMDAAKV
                    MWLFYEQPEVDFHDLVQKFMDIRKRAFKFPELGKKTKFVAIPTTSGTGSEVTPFAVIS
                    DKANNRKYPIADYSLTPTVAIVDPALVLTVPGFIAADTGMDVLTHATEAYVSQMANDF
                    TDGLALQAIKIVFDNLEKSVKTADFEAREKMHNASTMAGMAFANAFLGISHSMAHKIG
                    AQFHTVHGRTNAILLPYVIRYNGTRPAKTATWPKYNYYRADEKYQDIAKLLGLSASTP
                    EEAVESYAKAVYDLGCRVGIQMNFKAQGIDENEWKEHSRELAYLAYEDQCSPANPRLP
                    MVDHMQEIIEDAYYGYAERPGRRK"
     gene           9742..10758
                    /gene="adh1"
                    /note="synonym: SpyM3_0037"
```

```
CDS              9742..10758
                 /gene="adh1"
                 /note="best non-GAS blastp hit: gb|AAK74463.1| (AE007341)
                 alcohol dehydrogenase, zinc-containing [Streptococcus
                 pneumoniae TIGR4]; gb|AAK99066.1| (AE008407) Alcohol
                 dehydrogenase, propanol-preferring. [Streptococcus
                 pneumoniae R6]"
                 /codon_start=1
                 /transl_table=11
                 /product="putative alcohol dehydrogenase I"
                 /protein_id="AAM78644.1"
                 /db_xref="GI:21903754"
                 /translation="MKAVVVNQASTGVEVVEHDLPNVGHGEALVKVEYCGVCHTDLHV
                 AHGDFGQVPGRILGHEGIGIVEEIGEGVTSLKVGDRVSIAWFFEGCGHCEYCTTGRET
                 LCRSVKNAGYSVDGGMSEYAVVTADYAVKVPEGLDPAQASSITCAGVTTYKAIKEAGA
                 APGQWIVIFGAGGLGNLAVQYAKKVFNAHVVAVDINNDKLELAKEVGADIVVNGKEIE
                 DVPGYIQEKTGGAHGVVVTAVSKVAFNQAIDSVRAGGTVVAVGLPSEYMELSIVKTVL
                 DGIKVVGSLVGTRKDLEEAFAFGAEGLVVPVVEKVPVDTAPEVFDEMERGLIQGRKVL
                 DFIS"
gene             11146..12435
                 /gene="SpyM3_0038"
CDS              11146..12435
                 /gene="SpyM3_0038"
                 /note="best non-GAS blastp hit: gb|AAL00679.1| (AE008551)
                 multi antimicrobial extrusion (MATE) family transporter
                 [Streptococcus pneumoniae R6]"
                 /codon_start=1
                 /transl_table=11
                 /product="putative multi antimicrobial extrusion (MATE)
                 family transporter"
                 /protein_id="AAM78645.1"
                 /db_xref="GI:21903755"
                 /translation="MIYSRRKIFSLALPSMIENILQMLMGMVDNYLVAQIGLVAVSGV
                 SIANNIISIYQSLFIALGAAVSSLIARSIGENNQNKQLNYMAGVLQVTLLLSVGLGLL
                 SVVGHHQVLEWLGAEASVTLVGGRYLSIVGGMIVSLGLLTSLGAIVRAQGYPKIPMQV
                 SLLINVLNAIFSALSIYVWGFGLLGVAWATVLSRLVGVFLLCQFIPIKQVAKRLMRPL
                 DKIIFDLSLPAAGERLMMRAGDVLIIGIVVRFGTTALAGNAIGETLTQFNYMPGLAMA
                 TATIILVARQLGGGKVTEIRYIIREAFILSTLMMLVMGALTYLLGPSLLPLFTQNTDA
                 QRSAMVVLLFSLLGAPATAGTLVYTAVWQGLGKAKLPFYATTIGMWVIRIGLGYVIGV
                 VWQYGLIGVWMATVLDNTSRWFILSKQFKKYQEITFH"
gene             12634..12942
                 /gene="rpsJ"
                 /note="synonym: SpyM3_0039"
CDS              12634..12942
                 /gene="rpsJ"
                 /note="best blastp hit: gb|AAK33181.1| (AE006477) 30S
                 ribosomal protein S10 [Streptococcus pyogenes M1 GAS]"
                 /codon_start=1
                 /transl_table=11
                 /product="30S ribosomal protein S10"
                 /protein_id="AAM78646.1"
                 /db_xref="GI:21903756"
                 /translation="MANKKIRIRLKAYEHRTLDTAAEKIVETATRTGATVAGPVPLPT
                 ERSLYTIIRATHKYKDSREQFEMRTHKRLVDIINPTQKTVDALMKLDLPSGVNVEIKL"
gene             13190..13816
                 /gene="rplC"
                 /note="synonym: SpyM3_0040"
CDS              13190..13816
                 /gene="rplC"
                 /note="best blastp hit: gb|AAK33182.1| (AE006477) 50S
                 ribosomal protein L3 [Streptococcus pyogenes M1 GAS]"
                 /codon_start=1
                 /transl_table=11
                 /product="50S ribosomal protein L3"
                 /protein_id="AAM78647.1"
                 /db_xref="GI:21903757"
```

```
                        /translation="MTKGILGKKVGMTQIFTESGEFIPVTVIEATPNVVLQVKTVETD
                        GYEAVQVGFDDKREVLSNKPAKGHVAKANTAPKRFIREFKNIEGLEVGAELSVEQFEA
                        GDVVDVTGTSKGKGFQGVIKRHGQSRGPMAHGSRYHRRPGSMGPVAPNRVFKNKRLAG
                        RMGGNRVTVQNLEIVQVIPEKNVILVKGNVPGAKKSLITIKSAVKAAK"
```

gene   13840..14463
                        /gene="rplD"
                        /note="synonym: SpyM3_0041"

CDS   13840..14463
                        /gene="rplD"
                        /note="best blastp hit: gb|AAK33183.1| (AE006477) 50S
                        ribosomal protein L4 [Streptococcus pyogenes M1 GAS]"
                        /codon_start=1
                        /transl_table=11
                        /product="50S ribosomal protein L4"
                        /protein_id="AAM78648.1"
                        /db_xref="GI:21903758"
                        /translation="MANVKLFDQTGKEVSSVELNDAIFGIEPNESVVFDVVISQRASL
                        RQGTHAVKNRSAVSGGGRKPWRQKGTGRARQGSIRSPQWRGGGVVFGPTPRSYGYKLP
                        QKVRRLALKSVYSAKVAEDKFVAVEGLSFAAPKTAEFAKVLSALSIDTKVLVLVEEGN
                        EFAALSARNLPNVTVATAATASVLDIVNADKLLVTKEAISTIEEVLS"

gene   14463..14759
                        /gene="rplW"
                        /note="synonym: SpyM3_0042"

CDS   14463..14759
                        /gene="rplW"
                        /note="best blastp hit: gb|AAK33184.1| (AE006477) 50S
                        ribosomal protein L23 [Streptococcus pyogenes M1 GAS]"
                        /codon_start=1
                        /transl_table=11
                        /product="50S ribosomal protein L23"
                        /protein_id="AAM78649.1"
                        /db_xref="GI:21903759"
                        /translation="MNLYDVIKKPVITEKSMIALEAGKYTFEVDTRAHKLLIKQAVEA
                        AFDGVKVASVNTVNVKPKAKRVGRYTGFTSKTKKAIITLTADSKAIELFAAEAE"

gene   14777..15610
                        /gene="rplB"
                        /note="synonym: SpyM3_0043"

CDS   14777..15610
                        /gene="rplB"
                        /note="best blastp hit: gb|AAK33185.1| (AE006477) 50S
                        ribosomal protein L2 [Streptococcus pyogenes M1 GAS]"
                        /codon_start=1
                        /transl_table=11
                        /product="50S ribosomal protein L2"
                        /protein_id="AAM78650.1"
                        /db_xref="GI:21903760"
                        /translation="MGIKVYKPTTNGRRNMTSLDFAEITTSTPEKSLLVSLKSKAGRN
                        NNGRITVRHQGGGHKRHYRLIDFKRNKDGVEAVVKTIEYDPNRTANIALVHYTDGVKA
                        YIIAPKGLEVGQRIVSGPDADIKVGNALPLANIPVGTVVHNIELKPGKGGELVRAAGA
                        SAQVLGQEGKYVLVRLQSGEVRMILGTCRATIGTVGNEQQSLVNIGKAGRSRWKGIRP
                        TVRGSVMNPNDHPHGGGEGKAPVGRKAPSTPWGKPALGLKTRNKKAKSDKLIVRRRNE
                        K"

gene   15749..16027
                        /gene="rpsS"
                        /note="synonym: SpyM3_0044"

CDS   15749..16027
                        /gene="rpsS"
                        /note="best blastp hit: gb|AAK33186.1| (AE006478) 30S
                        ribosomal protein S19 [Streptococcus pyogenes M1 GAS]"
                        /codon_start=1
                        /transl_table=11
                        /product="30S ribosomal protein S19"
                        /protein_id="AAM78651.1"
                        /db_xref="GI:21903761"
                        /translation="MGRSLKKGPFVDEHLMKKVEAQANDEKKKVIKTWSRRSTIFPSF
                        IGYTIAVYDGRKHVPVYIQEDMVGHKLGEFAPTRTYKGHAADDKKTRR"
```

```
gene            16043..16387
                /gene="rplV"
                /note="synonym: SpyM3_0045"
CDS             16043..16387
                /gene="rplV"
                /note="best blastp hit: gb|AAK33187.1| (AE006478) 50S
                ribosomal protein L22 [Streptococcus pyogenes M1 GAS]"
                /codon_start=1
                /transl_table=11
                /product="50S ribosomal protein L22"
                /protein_id="AAM78652.1"
                /db_xref="GI:21903762"
                /translation="MAEITSAKAMARTVRVSPRKTRLVLDLIRGKKVADAIAILKFTP
                NKAARVIEKTLNSAIANAENNFGLEKANLVVSETFANEGPTMKRFRPRAKGSASPINK
                RTTHVTVVVSEK"
gene            16427..17053
                /gene="rpsC"
                /note="synonym: SpyM3_0046"
CDS             16427..17053
                /gene="rpsC"
                /note="best blastp hit: gb|AAK33188.1| (AE006478) 30S
                ribosomal protein S3 [Streptococcus pyogenes M1 GAS]"
                /codon_start=1
                /transl_table=11
                /product="30S ribosomal protein S3"
                /protein_id="AAM78653.1"
                /db_xref="GI:21903763"
                /translation="MRVGIIRDWDAKWYAEKEYADYLHEDLAIRKFINKELADASVST
                IEIERAVNKVIVSLHTAKPGMVIGKGGANVDALRGQLNKLTGKQVHINIIEIKQPDLD
                AHLVGENIARQLEQRVAFRRAQKQAIQRTMRAGAKGIKTQVSGRLNGADIARAEGYSE
                GTVPLHTLRADIDYAWEEADTTYGKLGVKVWIYRGEVLPARKNTKGGK"
gene            17057..17470
                /gene="rplP"
                /note="synonym: SpyM3_0047"
CDS             17057..17470
                /gene="rplP"
                /note="best blastp hit: gb|AAK33189.1| (AE006478) 50S
                ribosomal protein L16 [Streptococcus pyogenes M1 GAS]"
                /codon_start=1
                /transl_table=11
                /product="50S ribosomal protein L16"
                /protein_id="AAM78654.1"
                /db_xref="GI:21903764"
                /translation="MLVPKRVKHRREFRGKMRGEAKGGKEVSFGEYGLQATTSHWITN
                RQIEAARIAMTRYMKRGGKVWIKIFPHKSYTAKAIGVRMGSGKGAPEGWVAPVKRGKV
                MFEIAGVSEEIAREALRLASHKLPVKCKFVKREAE"
gene            17480..17686
                /gene="rpmC"
                /note="synonym: SpyM3_0048"
CDS             17480..17686
                /gene="rpmC"
                /note="best blastp hit: gb|AAK33190.1| (AE006478) 50S
                ribosomal protein L29 [Streptococcus pyogenes M1 GAS]"
                /codon_start=1
                /transl_table=11
                /product="50S ribosomal protein L29"
                /protein_id="AAM78655.1"
                /db_xref="GI:21903765"
                /translation="MKLQEIKDFVKELRGLSQEELAKKENELKKELFDLRFQAAAGQL
                EKTARLDEVKKQIARVKTVQSEMK"
gene            17712..17972
                /gene="rpsQ"
                /note="synonym: SpyM3_0049"
CDS             17712..17972
                /gene="rpsQ"
                /note="best blastp hit: gb|AAK33191.1| (AE006478) 30S
```

```
                       ribosomal protein S17 [Streptococcus pyogenes M1 GAS]"
                       /codon_start=1
                       /transl_table=11
                       /product="30S ribosomal protein S17"
                       /protein_id="AAM78656.1"
                       /db_xref="GI:21903766"
                       /translation="MERNQRKTLYGRVVSDKMDKTITVVVETKRNHPVYGKRINYSKK
                       YKAHDENNVAKEGDIVRIMETRPLSATKRFRLVEVVEKAVII"
     gene              17997..18365
                       /gene="rplN"
                       /note="synonym: SpyM3_0050"
     CDS               17997..18365
                       /gene="rplN"
                       /note="best blastp hit: gb|AAK33192.1| (AE006478) 50S
                       ribosomal protein L14 [Streptococcus pyogenes M1 GAS]"
                       /codon_start=1
                       /transl_table=11
                       /product="50S ribosomal protein L14"
                       /protein_id="AAM78657.1"
                       /db_xref="GI:21903767"
                       /translation="MIQQETRLKVADNSGAREILTIKVLGGSGRKFANIGDVIVASVK
                       QATPGGAVKKGDVVKAVIVRTKTGARRPDGSYIKFDDNAAVIIRDDKTPRGTRIFGPV
                       ARELREGGYMKIVSLAPEVL"
     gene              18444..18749
                       /gene="rplX"
                       /note="synonym: SpyM3_0051"
     CDS               18444..18749
                       /gene="rplX"
                       /note="best blastp hit: gb|AAK33193.1| (AE006478) 50S
                       ribosomal protein L24 [Streptococcus pyogenes M1 GAS]"
                       /codon_start=1
                       /transl_table=11
                       /product="50S ribosomal protein L24"
                       /protein_id="AAM78658.1"
                       /db_xref="GI:21903768"
                       /translation="MFVKKGDKVRVIAGKDKGTEAVVLKALPKVNKVIVEGVGMIKKH
                       QKPNTENPQGAIVEKEAPIHVSNVQVLDKNGVAGRVGYKVVDGKKVRYSKKSGEVLD"
     gene              18773..19315
                       /gene="rplE"
                       /note="synonym: SpyM3_0052"
     CDS               18773..19315
                       /gene="rplE"
                       /note="best blastp hit: gb|AAK33194.1| (AE006478) 50S
                       ribosomal protein L5 [Streptococcus pyogenes M1 GAS]"
                       /codon_start=1
                       /transl_table=11
                       /product="50S ribosomal protein L5"
                       /protein_id="AAM78659.1"
                       /db_xref="GI:21903769"
                       /translation="MANRLKEKYTNEVIPALTEKFNYTSVMAVPKVEKIVLNMGVGDA
                       VSNAKNLEKAAAELALISGQKPLITKAKKSIAGFRLREGVAIGAKVTLRGERMYEFLD
                       KLVSVSLPRVRDFHGVPTKSFDGRGNYTLGVKEQLIFPEISFDDVDKVRGLDIVIVTT
                       ANTDEESRELLKGLGMPFAK"
     gene              19331..19516
                       /gene="rpsN.1"
                       /note="synonym: SpyM3_0053"
     CDS               19331..19516
                       /gene="rpsN.1"
                       /note="best blastp hit: gb|AAK33195.1| (AE006478) 30S
                       ribosomal protein S14 [Streptococcus pyogenes M1 GAS]"
                       /codon_start=1
                       /transl_table=11
                       /product="30S ribosomal protein S14"
                       /protein_id="AAM78660.1"
                       /db_xref="GI:21903770"
                       /translation="MAKKSMIAKNKRPAKHSTQAYTRCEKCGRPHSVYRKFKLCRVCF
```

```
                    RELAYKGQIPGVVKASW"
gene                19667..20065
                    /gene="rpsH"
                    /note="synonym: SpyM3_0054"
CDS                 19667..20065
                    /gene="rpsH"
                    /note="best blastp hit: gb|AAK33196.1| (AE006478) 30S
                    ribosomal protein S8 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="30S ribosomal protein S8"
                    /protein_id="AAM78661.1"
                    /db_xref="GI:21903771"
                    /translation="MVMTDPIADFLTRIRNANQVKHEVLEVPASNIKKGIAEILKREG
                    FVKNVEVIEDDKQGIIRVFLKYGKNGERVITNLKRISKPGLRVYAKRDDMPKVLNGLG
                    IAIISTSEGLLTDKEARQKNVGGEVIAYVW"
gene                20268..20804
                    /gene="rplF"
                    /note="synonym: SpyM3_0055"
CDS                 20268..20804
                    /gene="rplF"
                    /note="best blastp hit: gb|AAK33197.1| (AE006478) 50S
                    ribosomal protein L6 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="50S ribosomal protein L6"
                    /protein_id="AAM78662.1"
                    /db_xref="GI:21903772"
                    /translation="MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIK
                    VEGTEITVVRPNDSKEMKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTK
                    LVLSVGKSHQDEVEAPEGITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGK
                    GIRYVGEYVRLKEGKTGK"
gene                20909..21265
                    /gene="rplR"
                    /note="synonym: SpyM3_0056"
CDS                 20909..21265
                    /gene="rplR"
                    /note="best blastp hit: gb|AAK33198.1| (AE006478) 50S
                    ribosomal protein L18 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="50S ribosomal protein L18"
                    /protein_id="AAM78663.1"
                    /db_xref="GI:21903773"
                    /translation="MISKPDKNKIRQKRHRRVRGKLSGTADRPRLNVFRSNTGIYAQV
                    IDDVAGVTLASASTLDKDVSKGTKTEQAVVVGKLVAERAVAKGISEVVFDRGGYLYHG
                    RVKALADAARENGLKF"
gene                21284..21778
                    /gene="rpsE"
                    /note="synonym: SpyM3_0057"
CDS                 21284..21778
                    /gene="rpsE"
                    /note="best blastp hit: gb|AAK33199.1| (AE006478) 30S
                    ribosomal protein S5 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="30S ribosomal protein S5"
                    /protein_id="AAM78664.1"
                    /db_xref="GI:21903774"
                    /translation="MAFKDNAVELEERVVAINRVTKVVKGGRRLRFAALVVVGDGNGR
                    VGFGTGKAQEVPEAIRKAVEAAKKNMIEVPMVGTTIPHEVYTNFGGAKVLLKPAVEGS
                    GVAAGGAVRAVIELAGVADITSKSLGSNTPINIVRATVEGLKQLKRAEEVAALRGISV
                    SDLA"
gene                21793..21975
                    /gene="rpmD"
                    /note="synonym: SpyM3_0058"
```

```
CDS                 21793..21975
                    /gene="rpmD"
                    /note="best blastp hit: gb|AAK33200.1| (AE006478) 50S
                    ribosomal protein L30 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="50S ribosomal protein L30"
                    /protein_id="AAM78665.1"
                    /db_xref="GI:21903775"
                    /translation="MAQIKITLTKSPIGRKPEQRKTVVALGLGKLNSSVVKEDNAAIR
                    GMVTAISHLVTVEDVK"
gene                22191..22631
                    /gene="rplO"
                    /note="synonym: SpyM3_0059"
CDS                 22191..22631
                    /gene="rplO"
                    /note="best blastp hit: gb|AAK33201.1| (AE006478) 50S
                    ribosomal protein L15 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="50S ribosomal protein L15"
                    /protein_id="AAM78666.1"
                    /db_xref="GI:21903776"
                    /translation="MKLHELKAAEGSRKVRNRVGRGTSSGNGKTSGRGQKGQKARSGG
                    GVRLGFEGGQTPLFRRIPKRGFTNINTKEYALVNLDQLNVFDDGTEVTPAILKDAGIV
                    RAEKSGVKVLGNGELTKKLTVKAAKFSKSAEAAIIAKGGSIEVI"
gene                22648..23952
                    /gene="secY"
                    /note="synonym: SpyM3_0060"
CDS                 22648..23952
                    /gene="secY"
                    /note="best blastp hit: gb|AAK33202.1| (AE006478) putative
                    preprotein translocase [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="putative preprotein translocase"
                    /protein_id="AAM78667.1"
                    /db_xref="GI:21903777"
                    /translation="MFLKILKDALKIKTVRNKIFFTIFIILVFRIGTHITVPGVNAKS
                    LEQLSELPFLNMLNLVSGNAMRNFSVFSMGVSPYITASIVVQLLQMDILPKFVEWGKQ
                    GEVGRRKLNQATRYISLVLAFAQSIGITAGFNTLSNVALVKTPDIKTYLLIGALLTTG
                    SVIVTWLGEQITDKGFGNGVSMIIFAGIISSIPSAIATIREDYFVNVKASDLHSSYLI
                    VGILIIAVLAIVFFTTYVQQAEYKIPIQYTKLMQGAPTSSYLPLKVNPAGVIPVIFAS
                    SITTIPSTIIPFVQNGRDLPWLNRLQEIFNYQTPVGMIVYALLIILFSFFYTFVQVNP
                    EKTAENLQKNSSYIPSVRPGRETEQFMSALLKKLATVGAIFLAFISLAPIAAQQALNL
                    SSSIALGGTSLLILISTGIEGMKQLEGYLLKRKYVGFMNTAE"
gene                24102..24740
                    /gene="adk"
                    /note="synonym: SpyM3_0061"
CDS                 24102..24740
                    /gene="adk"
                    /note="best blastp hit: sp|P82549|KAD_STRPY ADENYLATE
                    KINASE (ATP-AMP TRANSPHOSPHORYLASE)"
                    /codon_start=1
                    /transl_table=11
                    /product="adenylate kinase"
                    /protein_id="AAM78668.1"
                    /db_xref="GI:21903778"
                    /translation="MNLLIMGLPGAGKGTQAAKIVEEFGVAHISTGDMFRAAMANQTE
                    MGRLAKSYIDKGELVPDEVTNGIVKERLAEDDIAEKGFLLDGYPRTIEQAHALDATLE
                    ELGLRLDGVINIKVDPSCLVERLSGRIINRKTGETFHKVFNPPVDYKEEDYYQREDDK
                    PETVKRRLDVNMAQGEPILEHYRKLGLVTDIEGNQEITDVFADVEKALLELK"
gene                24858..25076
                    /gene="infA"
                    /note="synonym: SpyM3_0062"
CDS                 24858..25076
```

```
                    /gene="infA"
                    /note="best blastp hit: gb|AAK33204.1| (AE006478) putative
                    translation initiation factor IF-1 [Streptococcus pyogenes
                    M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="putative translation initiation factor IF-1"
                    /protein_id="AAM78669.1"
                    /db_xref="GI:21903779"
                    /translation="MAKEDVIEIEGKVVETMPNAMFTVELENGHQILATVSGKIRKNY
                    IRILVGDRVTVEMSPYDLTRGRITYRFK"
gene                25102..25218
                    /gene="rpmJ"
                    /note="synonym: SpyM3_0063"
CDS                 25102..25218
                    /gene="rpmJ"
                    /note="best blastp hit: gb|AAK33205.1| (AE006478) 50S
                    ribosomal protein B [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="50S ribosomal protein B"
                    /protein_id="AAM78670.1"
                    /db_xref="GI:21903780"
                    /translation="MKVRPSVKPICEYCKVIRRNGRVMVICPTNPKHKQRQG"
gene                25236..25601
                    /gene="rpsM"
                    /note="synonym: SpyM3_0064"
CDS                 25236..25601
                    /gene="rpsM"
                    /note="best blastp hit: gb|AAK33206.1| (AE006478) 30S
                    ribosomal protein S13 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="30S ribosomal protein S13"
                    /protein_id="AAM78671.1"
                    /db_xref="GI:21903781"
                    /translation="MARIAGVDIPNDKRVVISLTYVYGIGLATSKKILAAAGISEDIR
                    VKDLTSDQEDAIRREVDAIKVEGDLRREVNMNIKRLMEIGSYRGIRHRRGLPVRGQNT
                    KNNARTRKGKAVAIAGKKK"
gene                25646..26002
                    /gene="rpsK"
                    /note="synonym: SpyM3_0065"
CDS                 25646..26002
                    /gene="rpsK"
                    /note="best blastp hit: gb|AAK33207.1| (AE006478) 30S
                    ribosomal protein S11 [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="30S ribosomal protein S11"
                    /protein_id="AAM78672.1"
                    /db_xref="GI:21903782"
                    /translation="MKKNIESGVAHIHATFNNTIVMITDVHGNALAWSSAGALGFKGS
                    RKSTPFAAQMAAEAAAKSAQEHGLKTVEVTVKGPGSGRESAIRALAAAGLEVTAIRDV
                    TPVPHNGARPPKRRRV"
gene                26048..26986
                    /gene="rpoA"
                    /note="synonym: SpyM3_0066"
CDS                 26048..26986
                    /gene="rpoA"
                    /note="best blastp hit: gb|AAK33208.1| (AE006478)
                    DNA-directed RNA polymerase alpha subunit [Streptococcus
                    pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="DNA-directed RNA polymerase alpha subunit"
                    /protein_id="AAM78673.1"
```

```
                         /db_xref="GI:21903783"
                         /translation="MIEFEKPIITKIDENKDYGRFVIEPLERGYGTTLGNSLRRVLLS
                         SLPGAAVTSIKIDGVLHEFDTIPGVREDVMQIILNVKGLAVKSYVEDEKIIELEVEGP
                         AEVTAGDILTDSDIELVNPDHYLFTIAEGHSLRATMTVAKKRGYVPAEGNKKDDAPVG
                         TLAVDSIYTPVKKVNYQVEPARVGSNDGFDKLTIEIMTNGTIIPEDALGLSARVLIEH
                         LNLFTDLTEVAKSTEVMKETEKVNDEKVLDRTIEELDLSVRSYNCLKRAGINTVFDLT
                         EKSEPEMMKVRNLGRKSLEEVKVKLADLGLGLKNDK"
   gene                  27001..27387
                         /gene="rplQ"
                         /note="synonym: SpyM3_0067"
   CDS                   27001..27387
                         /gene="rplQ"
                         /note="best blastp hit: ref|NP_268487.1| (NC_002737)
                         ribosomal protein L17 [Streptococcus pyogenes]
                         [Streptococcus pyogenes M1 GAS]"
                         /codon_start=1
                         /transl_table=11
                         /product="50S ribosomal protein L17"
                         /protein_id="AAM78674.1"
                         /db_xref="GI:21903784"
                         /translation="MAYRKLGRTSSQRKAMLRDLTTDLLINESIVTTEARAKEIRKTV
                         EKMITLGKRGDLHARRQAAAYVRNEIASENYDEATDKYTSTTALQKLFSEIAPRYAER
                         NGGYTRILKTEPRRGDAAPMAIIELV"
   rRNA                  28313..29647
                         /product="16S ribosomal RNA"
   tRNA                  29809..29884
                         /product="tRNA-Ala"
   rRNA                  30181..33080
                         /product="23S ribosomal RNA"
   tRNA                  33301..33373
                         /product="tRNA-Val"
   tRNA                  33379..33449
                         /product="tRNA-Gly"
   tRNA                  33484..33557
                         /product="tRNA-Ile"
   tRNA                  33580..33651
                         /product="tRNA-Glu"
   tRNA                  33662..33751
                         /product="tRNA-Ser"
   tRNA                  33761..33834
                         /product="tRNA-Met"
   tRNA                  33855..33927
                         /product="tRNA-Phe"
   tRNA                  33947..34027
                         /product="tRNA-Tyr"
   tRNA                  34034..34104
                         /product="tRNA-Trp"
   tRNA                  34116..34188
                         /product="tRNA-His"
   tRNA                  34197..34268
                         /product="tRNA-Gln"
   tRNA                  34288..34371
                         /product="tRNA-Leu"
   gene                  34631..34816
                         /gene="SpyM3_0068"
   CDS                   34631..34816
                         /gene="SpyM3_0068"
                         /note="best blastp hit: gb|AAK33209.1| (AE006479)
                         hypothetical protein [Streptococcus pyogenes M1 GAS]"
                         /codon_start=1
                         /transl_table=11
                         /product="hypothetical protein"
                         /protein_id="AAM78675.1"
                         /db_xref="GI:21903785"
                         /translation="MSFEIFTLIIGWKLVGYRVMECGSSFKQGDYRLVVHICLLNVRD
                         EMLSQQGHEDKADWPEP"
```

```
misc_feature    35514..36029
                /note="region contains multiple probable gene fragments;
                best blastp hit= ref|NP_240927.1| (NC_002570) isopentenyl
                monophosphate kinase [Bacillus halodurans]
                sp|Q9KGK0|ISPE_BACHD
                4-diphosphocytidyl-2-C-methyl-D-erythritol kinase (CMK)
                (4-(cytidine-5'-diphospho)-2-C-methyl-D-erythritol
                kinase)"
gene            36139..36582
                /gene="adcR"
                /note="synonym: SpyM3_0069"
CDS             36139..36582
                /gene="adcR"
                /note="best non-GAS blastp hit: gb|AAK76226.1| (AE007505)
                adc operon repressor AdcR [Streptococcus pneumoniae
                TIGR4]"
                /codon_start=1
                /transl_table=11
                /product="putative repressor protein"
                /protein_id="AAM78676.1"
                /db_xref="GI:21903786"
                /translation="MGTLEKKLDNLVNTILLKAENQHELLFGACQSDVKLTNTQEHIL
                MLLSQQRLTNTDLAKALNISQAAVTKAIKSLVKQDMLAGTKDTVDARVTYFELTELAK
                PIASEHTHHHDETLNVYNRLLQKFSAKELEIVDKFVTVFAEELEG"
gene            36586..37305
                /gene="adcC"
                /note="synonym: SpyM3_0070"
CDS             36586..37305
                /gene="adcC"
                /note="best non-GAS blastp hit: emb|CAA96186.1| (Z71552)
                AdcC protein [Streptococcus pneumoniae]"
                /codon_start=1
                /transl_table=11
                /product="ABC transporter (ATP-binding protein)"
                /protein_id="AAM78677.1"
                /db_xref="GI:21903787"
                /translation="MRYISVENLSFQYESEPVLEGITYHLDSGEFVTMTGENGAAKST
                LIKATLGILQPKAGRVTIAKKNKDGKQLRIAYLPQQVASFNAGFPSTVYEFVKSGRYP
                RSGWFRHLNKHDEEHVQASLEAVGMWENRHKRIGSLSGGQKQRVVIARMFASDPDIFV
                LDEPTTGMDSGTTDTFYELMHHSAHQHGKSVLMITHDPEEVKAYADRNIHLVRNQKLP
                WRCFNIHEVETDDEKGGHGHA"
gene            37298..38113
                /gene="adcB"
                /note="synonym: SpyM3_0071"
CDS             37298..38113
                /gene="adcB"
                /note="best non-GAS blastp hit:emb|CAA96187.1| (Z71552)
                AdcB protein [Streptococcus pneumoniae]"
                /codon_start=1
                /transl_table=11
                /product="putative ABC transporter (permease)"
                /protein_id="AAM78678.1"
                /db_xref="GI:21903788"
                /translation="MLDILSYDFMQRAVMAVVAISIFAPILGIFLILRRQSLMSDTLS
                HVSLAGVALGVVLGISPTITTIIVVVLAAILLEYLRVVYKHYMEISTAILMSLGLALS
                LIIMSKSHSSSSMSLEQYLFGSIITISMEQVVALFAIAAIILILTVLFIRPMYILTFD
                EDTAFVDGLPVRLMSVLFNIVTGVAIALTIPAAGALLVSTIMVLPASIAMRLGKNFKT
                VILLGIVIGFSGMLSGIFLSYFFETPASATITMIFISIFLLVSLGGMLKKRLF"
gene            complement(38153..38536)
                /gene="SpyM3_0072"
CDS             complement(38153..38536)
                /gene="SpyM3_0072"
                /note="best blastp hit: gb|AAK33213.1| (AE006479) putative
                histidine triad (HIT) protein [Streptococcus pyogenes M1
                GAS]"
                /codon_start=1
```

```
                          /transl_table=11
                          /product="putative histidine triad (HIT) protein"
                          /protein_id="AAM78679.1"
                          /db_xref="GI:21903789"
                          /translation="MTECIFCHQLKANQLLTQSQYFKVVFDIDPIQKGYLLLISKDHY
                          TSLTQLPKEVRYDLINLQAALVAKLEQHLPISGVTSVSNDKELMDEGTHFHLHLIPRL
                          TNDSFWEGITINQENWDLAPFLKHL"
gene                      complement(38592..39848)
                          /gene="tyrS"
                          /note="synonym: SpyM3_0073"
CDS                       complement(38592..39848)
                          /gene="tyrS"
                          /note="best blastp hit: gb|AAK33214.1| (AE006479) putative
                          tyrosine-tRNA ligase [Streptococcus pyogenes M1 GAS]"
                          /codon_start=1
                          /transl_table=11
                          /product="putative tyrosine-tRNA ligase"
                          /protein_id="AAM78680.1"
                          /db_xref="GI:21903790"
                          /translation="MNIFEELKARGLVFQTTDEQALVKALTEGQVSYYTGYDPTADSL
                          HLGHLVAILTSRRLQLAGHKPYALVGGATGLIGDPSFKDAERSLQTKETVLEWSDKIK
                          GQLSTFLDFENGDNKAELVNNYDWFSQISFIDFLRDVGKYFTVNYMMSKDSVKKRIET
                          GISYTEFAYQIMQGYDFYELNDKHNVTLQIGGSDQWGNMTAGTELLRKKADKTGHVMT
                          VPLITDSTGKKFGKSEGNAVWLDADKTSPYEMYQFWLNVMDDDAVRFLKIFTFLSLDE
                          IAEIESQFNAARHERLAQKTLAREVVTLVHGEEAYKQALNITEQLFAGNIKNLSANEL
                          KQGLSNVPNYHVQSEDSLNLVDMLVTAGISPSKRQAREDVQNGAIYINGDRIQDLDYQ
                          LSNDDKIDDQLTVIRRGKKKYAVLTY"
gene                      39952..42252
                          /gene="pbp1B"
                          /note="synonym: SpyM3_0074"
CDS                       39952..42252
                          /gene="pbp1B"
                          /note="best blastp hit: gb|AAK33215.1| (AE006480) putative
                          penicillin-binding protein 1b [Streptococcus pyogenes M1
                          GAS]"
                          /codon_start=1
                          /transl_table=11
                          /product="putative penicillin-binding protein 1b"
                          /protein_id="AAM78681.1"
                          /db_xref="GI:21903791"
                          /translation="MVKWNTKQKRISHQRLGLLDLGPVLLRTLRLLSNFFYIVIFLFG
                          MMGFGMAFGYLASQIESVKVPSKESLVKQVESLTMISQMNYSDNSLISTLDTDLLRTP
                          VANDAISENIKKAIVSTEDEHFQEHKGVVPKAVFRATLASVLGFGEASGGSTLTQQLV
                          KQQVLGDDPTFKRKSKEIVYALALERYMSKDNILCDYLNVSPFGRNNKGQNIAGVEEA
                          ARGIFGVSAKDLTVPQAAFLAGLPQSPIVYSPYLSTGQLKSEKDMAYGIKRQQNVLYN
                          MYRTGVLSKKEYEDYKAYPIQKDFIQPGSAIVNNHDYLYYTVLADAKKAMYSYLIKRD
                          KVSSRDLKNDETKAAYEERALTELQQGGYTITTTINKPIYNAMQTAAAQFGGLLDDGT
                          GTVQMGNVLTDNATGAVLGFVGGRDYALNQNNHAFNTVRSPGSSIKPIIAYGPAIDQG
                          LMGSASVLSNYPTTYSSGQKIMHADSEGTAMMPLQEALNTSWNIPAFWTQKLLREKGV
                          DVENYMTKMGYKIADYSIESLPLGGGIEVSVAQQTNAYQMLSNNGLYQKQYIVDKITA
                          SDGTVVYKHENKPIRIFSAATATILQELLRGPITSGATTTFKNRLAAINPWLANADWI
                          GKTGTTENYTDVWLVLSTPKVTLGGWAGHDDNTSLAPLTGYNNNSNYLAYLANAINQA
                          DPNVIGVGQRFNLDPGVIKANVLKSTGLQPGTVNVNGHTFSVGGEMTTSLWSQKGPGA
                          MTYRFAIGGTDADYQKAWGNFGFRKN"
gene                      42516..46082
                          /gene="rpoB"
                          /note="synonym: SpyM3_0075"
CDS                       42516..46082
                          /gene="rpoB"
                          /note="best blastp hit: gb|AAK33216.1| (AE006480) putative
                          DNA-dependent RNA polymerase subunit beta [Streptococcus
                          pyogenes M1 GAS]"
                          /codon_start=1
                          /transl_table=11
                          /product="putative DNA-dependent RNA polymerase subunit
                          beta"
```

```
                    /protein_id="AAM78682.1"
                    /db_xref="GI:21903792"
                    /translation="MAGHEVRYGKHRTRRSFSRIKEVLDLPNLIEIQTDSFQDFLDSG
                    LKEVFEDVLPISNFTDTMELEFVGYEFKEPKYTLEEARIHDASYSAPIFVTFRLVNKE
                    TGEIKTQEVFFGDFPIMTEMGTFIINGGERIIVSQLVRSPGVYFNDKVDKNGKVGYGS
                    TVIPNRGAWLELETDSKDIAYTRIDRTRKIPFTTLVRALGFSGDDEIVDIFGESDLVR
                    NTIEKDIHKNPSDSRTDEALKEIYERLRPGEPKTADSSRSLLIARFFDARRYDLAAVG
                    RYKVNKKLNIKTRLLNQIIAENLVDAETGEILVEAGTEMTRSVIESIEEHLDGDLNKF
                    VYTPNDYAVVTEPVVLQKFKVVSPIDPDRVVTIVGNANPDDKVRALTPADILAEMSYF
                    LNLAEGLGKVDDIDHLGNRRIRAVGELLANQFRIGLARMERNVRERMSVQDNDVLTPQ
                    QIINIRPVTAAVKEFFGSSQLSQFMDQHNPLSELSHKRRLSALGPGGLTRDRAGYEVR
                    DVHYTHYGRMCPIETPEGPNIGLINNLSSFGHLNKYGFIQTPYRKVDRATGRVTNEIV
                    WLTADEEDEYTVAQANSKLNEDGTFAEEIVMGRHQGNNQEFSASVVDFVDVSPKQVVA
                    VATACIPFLENDDSNRALMGANMQRQAVPLIDPKAPYVGTGMEYQAAHDSGAAVIAQH
                    NGKVVFSDAEKVEIRRQDGSLDVYHITKFRRSNSGTAYNQRTLVKVGDIVEKGDFIAD
                    GPSMENGEMALGQNPVVAYMTWEGYNFEDAVIMSERLVKEDVYTSVHLEEFESETRDT
                    KLGPEEITREIPNVGEEALKDLDEMGIIRIGAEVKEGDILVGKVTPKGEKDLSAEERL
                    LHAIFGDKSREVRDTSLRVPHGGDGIVRDVKIFTRANGDELQSGVNMLVRVYIAQKRK
                    IKVGDKMAGRHGNKGVVSRIVPVEDMPYLPDGTPVDIMLNPLGVPSRMNIGQVMELHL
                    GMAARNLGIHIATPVFDGASSEDLWDTVREAGMDSDAKTVLYDGRTGEPFDNRVSVGV
                    MYMIKLHHMVDDKLHARSVGPYSLVTQQPLGGKAQFGGQRFGEMEVWALEAYGASNVL
                    QEILTYKSDDVTGRLKAYEAITKGKPIPKPGVPESFRVLVKELQSLGLDMRVLDEDDN
                    EVELRDLDEGEDDDIMHVDDLEKAREKQAQETQEVSETTDEK"
     gene           46173..49796
                    /gene="rpoC"
                    /note="synonym: SpyM3_0076"
     CDS            46173..49796
                    /gene="rpoC"
                    /note="best blastp hit: gb|AAK33217.1| (AE006480)
                    DNA-dependent RNA polymerase, B' subunit [Streptococcus
                    pyogenes M1 GAS]"
                    /codon_start=1
                    /transl_table=11
                    /product="putative DNA-dependent RNA polymerase beta prime
                    subunit"
                    /protein_id="AAM78683.1"
                    /db_xref="GI:21903793"
                    /translation="MVDVNRFKSMQITLASPSKVRSWSYGEVKKPETINYRTLKPERE
                    GLFDEVIFGPTKDWECACGKYKRIRYKGIVCDRCGVEVTRAKVRRERMGHIELKAPVS
                    HIWYFKGIPSRMGLTLDMSPRALEEVIYFAAYVVIDPKDTPLEPKSLLTEREYREKLQ
                    EYGHGSFVAKMGAEAIQDLLKRVDLAAEIAELKEELKSASGQKRIKAVRRLDVLDAFN
                    KSGNKPEWMVLNILPVIPPDLRPMVQLDGGRFAASDLNDLYRRVINRNNRLARLLELN
                    APGIIVQNEKRMLQEAVDALIDNGRRGRPITGPGSRPLKSLSHMLKGKQGRFRQNLLG
                    KRVDFSGRSVIAVGPTLKMYQCGVPREMAIELFKPFVMREIVAKEYAGNVKAAKRMVE
                    RGDERIWDILEEVIKEHPVLLNRAPTLHRLGIQAFEPVLIDGKALRLHPLVCEAYNAD
                    FDGDQMAIHVPLSEEAQAEARLLMLAAEHILNPKDGKPVVTPSQDMVLGNYYLTMEDA
                    GREGEGMIFKDKDEAVMAYRNGYAHLHSRVGIAVDSMPNKPWKDSQRHKIMVTTVGKI
                    LFNDIMPEDLPYLQEPNNANLTEGTPDKYFLEPGQDIQEVIDGLDINVPFKKKNLGNI
                    IAETFKRFRTTETSAFLDRLKDLGYYHSTLAGLTVGIADIPVIDNKAEIIDAAHHRVE
                    EINKAFRRGLMTDDDRYVAVTTTWREAKEALEKRLIETQDPKNPIVMMMDSGARGNIS
                    NFSQLAGMRGLMAAPNGRIMELPILSNFREGLSVLEMFFSTHGARKGMTDTALKTADS
                    GYLTRRLVDVAQDVIIREDDCGTDRGLLIRAITDGKEVTETLEVRLQGRYTRKSVKHP
                    ETGEVLIGADQLITEDMARKIVDAGVEEVTIRSVFTCATRHGVCRHCYGINLATGDAV
                    EVGEAVGTIAAQSIGEPGTQLTMRTFHTGGVASNTDITQGLPRIQEIFEARNPKGEAV
                    ITEVKGNVVEIEEDASTRTKKVYVQGKTGMGEYVVPFTARMKVEVGDEVNRGAALTEG
                    SIQPKRLLEVRDTLSVETYLLAEVQKVYRSQGVEIGDKHVEVMVRQMLRKVRVMDPGD
                    TDLLPGTLMDISDFTDANKDIVISGGIPATSRPVLMGITKASLETNSFLSAASFQETT
                    RVLTDAAIRGKKDHLLGLKENVIIGKIIPAGTGMARYRNIEPQAMNEIEVIDHTEVSA
                    EAE"
     gene           49966..50313
                    /gene="SpyM3_0077"
     CDS            49966..50313
                    /gene="SpyM3_0077"
                    /note="best blastp hit: gb|AAK33218.1| (AE006481) putative
                    DNA binding protein [Streptococcus pyogenes M1 GAS]"
                    /codon_start=1
```

```
                    /transl_table=11
                    /product="putative DNA binding protein"
                    /protein_id="AAM78684.1"
                    /db_xref="GI:21903794"
                    /translation="MYGDWEPWWFIDGWQDDIIDEQQFSDWQEALDYFNQEWQRMKAI
                    FPSYHSQKNLLATFWEKEDKRWCEDCDEDLQQFHSLLLLKNKDIVPSNNYIPEFEQRN
                    DSPQVAYLCKLNL"
ORIGIN
        1 tacaagaaag gagtgagggt gtttccgagt atttgaactc gggctaactt atctcctcaa
       61 tacaaatcaa ataatagaaa ggaaatgggc actagtttca ctaaactgaa cccgagcgga
      121 aagctcggaa tttagataaa ccgcctagga cgcaagcgtc cattgttggt ttcctaaaat
      181 tcagtcgctt tctggtcgcc cttggtatct taaaatgatt gaacgttatt cacgccctga
      241 gatggcggca atttggacag aggaaaataa ataccgtgct tggttggagg ttgagattct
      301 ggctgacgag gcatgggcag agttgggtga gattcctaag gaggatgtgg ctaagattcg
      361 tgagaaggcg gattttgaca ttgaccgcat tcttgagatt gagcaggaga cgcgtcacga
      421 tgtggtggct ttcacgcgtg cagtttctga gacgcttggt gaggagcgca agtgggtgca
      481 ctacggtttg acctcgactg acgtggtgga cactgcctac ggttacctct acaagcaagc
      541 taacgacatt atccgtcgcg atcttgagaa tttcaccaat atcgtggcag acaaggcgcg
      601 tgagcacaaa atgaccatca tgatgggtcg tacccacggt gttcatgccg agccaacgac
      661 tttcggtctt aagttggcga cttggtacag cgagatgaaa cgtaatcagg agcgttttga
      721 acatgctgcc gcaggtgtgg aagctggtaa gatttcaggt gccgttggta actttgctaa
      781 tatccctcta tttgtggaac aatatgtctg tgacaaatta ggcattcgtt cacaagagat
      841 ttcaacacaa gttcttccac gtgacctcca cgcagaatat tttgcagtgc ttgcaagtat
      901 tgcaacttct atcgaacgta tggcgacaga gattcgtggt ctgcaaaagt cagaacaacg
      961 tgaagttgaa gaattctttg ccaaaggtca gaaaggtagc tctgctatgc ctcacaaacg
     1021 caacccaatc ggttcagaga acatgacagg gctagcgcgc gtgattcgtg gtcacatggt
     1081 gacagcttat gagaacgtgt cactttggca tgagcgtgat atttcacact catcagctga
     1141 gcgtatcatc acacctgaca caactatctt gattgactac atgctcaacc gctttggcaa
     1201 tatcgttaag aacttgactg tcttcccgga aaatatgatg cgcaatatgg aatcaacttt
     1261 tggtttgatt tatagtcaac gtgttatgct caaattgatt gaaaaaggaa tgacacgaga
     1321 agaagcttat gacttagttc aacctaagac agcttattcc tgggacaatc aagtggattt
     1381 caaaccactt ttagaagaag acaccaaagt tacctcttgt cttacacaag aagaaattga
     1441 tgaactattt aatccgattt attacacaaa acgtgttgat gatattttta agcgtttagg
     1501 gatttaatat aaaaaaaaga aggtgattcc cttctttttt atttaaaaaa cgaatgtttt
     1561 ctttaaaaat attaaaaatg ttagtttta attagacgct gtgatataat aaagaaaaca
     1621 gttgttggag agaaaccatg ttagaacatt ttggtggaaa agtaaaagtg ttaagacttg
     1681 aaaagaggat tagtcgcgag gacttgtgtg gggatgagtc tgaactttct gttcgtcaat
     1741 tagcacggat agaactaggt caatccatac caagtttaag taaggttatt tttattgcaa
     1801 aagccttaaa cgttagtgtc ggttacttaa ctgatggtgc tgatttagaa ctacctaagc
     1861 gttacaaaga attaaaatac cttatcttaa ggacaccaac ttacatggat gatggaaaat
     1921 tacaagtacg agaagagcag tttgatgaaa tttttgagga ttattatgat aaattaccag
     1981 aggaagagaa agttgctgtt gatattatcc aagcaaaatt tgaagtttat caaaccggag
     2041 atattaattt cggatatagt attttaaaag aatttctacc acagctaaaa agaaaatcta
     2101 tctataattt aaatgaatta ttacttatag atttgtattt gattattctg gtagtttctc
     2161 attttttcaga tgatatattt gatgtacagt tttatgaaga ataacagag agcatgttaa
     2221 aacaacacaa taatttatca ttggaagatt tattttttact gaataatatc ttattatctt
     2281 gtgcggacac ttatattcgt ttgaagatgt tcggtcatct aaaagaaaca ttacaactta
     2341 gccactttat aatgtcaact attcaagatt ttcaaaaaat gcctatgtat tgtatgtatg
     2401 aatggaagct atctattttt tatttgaaag atattaaccg agcacggaat tactttgaac
     2461 agtctatttt atttactcaa atgacaggag atacatattt agttcaaaaa ttacggggag
     2521 aatggaataa agatattcat tatatttaaa taataatttt atgacatgga tgtcatgttt
     2581 atttatattt actatagcta tactatctct tataaataat atttttttgg agatagaaga
     2641 tgttaaaaaa agttaagcca tttttactat tagccgcagt agttgcattt aaagttgctc
     2701 gtgtaatgca tgaatttgat tggtggaatc ttggttaact ctcttttact ttatgttata
     2761 atagtcttat ggctagaatt ttagacaatg atgtaatggg aaatgaggag ttttcggatc
     2821 ggactcttcg ccctcaatat ctacacgaat atattggaca agataaagtt aaggaacaat
     2881 tcgctatttt tatagaagca gctaaaagac gtgacgaatc tttagaccat gtttttattat
     2941 ttggacctcc aggactggga aaaacaacaa tggcatttgt gattgccaat gaattgggag
     3001 ttaatttaaa gcaaacttca ggtcctgccg ttgagaaagc tggagatttg gtagctattt
     3061 taaatgaatt agaaccaggg gatattttgt ttattgatga aattcaccgc atgccaatgt
     3121 ctgtcgagga agtactatat agtgctatgg aagacttcta tattgatatt atgattggcg
     3181 ctggagatac tagtcgtagt attcatttgg atctgcctcc atttacattg attggtgcta
     3241 ctacacgtgc aggcatgtta tctaatcccc tcagagctcg ttttggtatc actggtcaca
     3301 tggaatacta tcaagaaaag gatttgacag agattgtgga gcgtacagct actattttg
     3361 aaataaaaat agaccatgaa gctgcacgga aattagcttg tcgcagtaga ggaacgcccc
     3421 gcattgctaa tcgattacta aaacgagtgc gtgattatgc tcaaattatt ggtgatggca
```

```
3481 tcataacggc tcaaataact gatagagctt tgactatgtt agatgttgac cgcgaaggtc
3541 tcgattacat tgatcagaaa attttacgaa cgatgattga gatgtatcag ggagggccag
3601 ttggtttggg gacattatct gtgaatattg ccgaggagcg taatacagtt gaagagatgt
3661 atgaacccta cttaattcaa aaaggctttc tcatgcgaac acgaacaggt cgtgtagcga
3721 cgcaaaaggc ttatcgtcat cttggctatc cctatcaaaa cacttaatga tttttcaaat
3781 ctaagaaaat taatctgaac ctgctttttg tgttcggatt ttttgataag ttgacagaaa
3841 attattagat tgattctcc gatatcagtt agaaatttga tataataatt caaaggagta
3901 tttaatgaaa aaagtatgtt ttgtctgtct gggtaatatt tgtcgaagcc ccatggctga
3961 gtttgtaatg aagtcaatag tatcaagtga tgttatgatg atagaaagtc gtgctacttc
4021 tgattgggag catggaaacc ctattcactc aggtacacag tccatattaa aaacttacca
4081 aattaattat gatataacta aatgctccaa gcagataact ataactgatt ttaacacctt
4141 tgactatatt attggtatgg atagcgataa tgtgaaaaat ctcaaagaga tgtcgcaaca
4201 tcaatgggac tctaaaatct acctgtttag agaagggggt gttcctgatc cttggtacac
4261 taacgatttt gaagaaacct accaattagt tagaaaaagga tgccaggatt ggctttctcg
4321 tttaatgagt aaagagtatt gatattagaa gttgagtaaa agaaatgata gatatgcaag
4381 atatagtaaa aaaatggagt attacacggg cgaagttgga aattgtttcg gtgattgtca
4441 tattggtttg tgcaatttct gttttttagcg taagaatttc gaataagaca agtttgacct
4501 atgataaagg gcgtatacac tatactggtt acgtgattaa ccataaaatg aatggagaag
4561 ggaagcttgt ctacccccaac ggtgatatct atgagggtac ttttaagaat ggcctatttg
4621 aaggaaaagg aactttttact gctaagacgg gctggttata taacgggggaa tttcataaag
4681 gacaagcaaa tggcaaaggt gtgttaaaag caaagaataa taaagtctat aaagggattt
4741 ttaaacaggg gatatttcaa aaatgagaat aaaatggttt tcgtttgtta gggtaacagg
4801 acttttactg gtttttactct accacttttt taaaaatgta tttccaggag gtttttattgg
4861 tgttgacatt ttcttcacct tttcaggata tctaatcaca gccctcttga ttgatgaata
4921 cacaaaaaaa gagtctatcg atattatcgg ttttttaaaa agacgctttt atcgaattgt
4981 tcctccttg gtgttaatga ttttattgac cattcctttt acgttttaa ttaagaagga
5041 tttcattgct aatataggaa gtcagattac agctgtttta ggatttacca ctaatattta
5101 tgaaatattg acgggaagta gttatgaaag ccaatttatt ccacatctct ttgttcatac
5161 gtggagctta gctattgaag ttcatttta cttgtttttgg ggtgtatttg tttggttatt
5221 agctagacgc aaggagactc agaaacaact gagaggacta ctgtttttga tttctttggg
5281 aatatttgct attagtttct tgagcatgtc tataagatct tttatgacct caaatttttc
5341 cctgatttat ttttcgagtc tttctcacag ttttcccttc tttttagggg cgatgtttgc
5401 cacgataaca ggtattaacg agactactgt tcgatttcaa aaaaatgtac gtttatggcc
5461 gcgccagtat gtccttgctg ctatggttgg agcatttaca cttttgcttg tgctaacggt
5521 cacattggat tttaaccata ttacgaccta tctatttggc tttgcttttgg ctagcctatt
5581 cgcatcaatt atgatttatg cagcgcgtgt tcttcatgag caaacaccag atgtacaaga
5641 gcctaaagct atcacttata tagctgatat tagctatggg atttacctct tccattggcc
5701 attttacatt attttttagcc aattaatgtc tcatattttg gcagttattc taacagtttt
5761 cttttcaatc ttgtttgcca ctgtgtctta ctatattgtg gaacctttgg tccaagggag
5821 aaaaccaaac ctgcttggtt tagaaattga ctgttctcct tactataagt ggattgtagg
5881 agggactctc gccttagcat tattaacttt aggaacttgt atgatagcgc ctaaagttgg
5941 taagtttgag aaacaattgt tggttagttc cctacaacag gctcaaagta atatggagcg
6001 gacacataca ctagctgcag gagacgctaa tgctttgagt gacgtaggta ttattggtga
6061 ttctgtagca ttacgctcta gtgcggcatt ctcaaaaatt atgccacaag cgcaactgga
6121 tgcagcggtc agtcggaatt ttaaagaagc tttcgattta tttaataacc aaattaagtc
6181 taagagtcta tctaagactg ttgtcttagc agtaggtgtt aactcgcttg acaactattc
6241 tcaagcagtt cagtcttta ttgaggcatt gccaaaaggt catcgtttag ttttggtttc
6301 tccatataat gccaaaaatg ccagtcaggt tgcagaagct agagactatg gtcttaaatt
6361 gtccaaaaaa tacaagtatg tcactattgc agactggtat aaagttgctg ttgaacatcc
6421 agatatttgg tatggcagtg acggtgttca ttatagtgaa gatagtcaag gagcagaact
6481 atatgtctcc acaatccaga ctgctgttga gaagtcagct aaaaaaccag ctaaataaag
6541 ttaagaaatg tctaagagat aagtcagatc cattgtgctc tggctttttc ttgtgaacaa
6601 atgatgatgg taaaatagta gtactttgag gtttttaaaa gaaagcggtt tcagaaataa
6661 aacggctttt tttagatata tttctgaaaa aaagttaatg aagaatattg ataccatagg
6721 atttcagaaa taatttgaaa aaaacttcac aaatttattg tgaaatgatt tacaaaattt
6781 caaaaagtgc tataataatt ttgtaaacaa aattgtgaaa cttttaacaa gataaaggag
6841 tctcaaatga ctgaaggaca taatactgtt gaaacaacct ctgttctgt gacaattgat
6901 gctcttgttc aaaaaggttt agctgctctt gcagagatgc gtaagcttga ccaagaacaa
6961 gttgattata tcgtagccaa agcttctgtt gctgctttgg atgctcacgg tgaacttgct
7021 aaacatgctt atgaagaaac aggtcgcggt gtctttgaag ataaagcaac aaaaaatcta
7081 tttgcttgtg agcatgtggt taataacatg cgccatcaaa aaacagtagg aattattgaa
7141 gaagatgatg tgacaggttt gacattaatt gctgagccgg ttggtgttat ctgtgggatt
7201 acaccaacaa ctaacccaac ttcaacagct atctttaaat ctttgatctc gttaaaaaca
7261 cgtaatccaa ttatttttgc ctttcaccca tcagcacaag aatcatcagc gcatgccgct
7321 cgtattgttc gtgatgctgc tattgccgct ggtgctcctg aaaattgtgt gcagtgggtt
7381 gaaacaccat cacttgaagc aacaaatgct ttgatgaatc atgacggcat tgccactatc
```

```
 7441 cttgcgacag gtggaaatgc aatggttaaa gcggcatact catgtgggaa acctgccctt
 7501 ggggtaggtg ctggtaacgt tccagcttat gttgaaaaat ctgctaacat ccgccaagcc
 7561 gctcatgata ttgtgatgtc taaatcattt gataacggta tggtctgtgc gtctgaacaa
 7621 gctgttatcg tggacaaaga aatctatgac gattttgtag cagaattcaa atcttaccat
 7681 acttattttg taaataaaaa agaaaaagcc cttcttgaag aattctgttt tggtgccaaa
 7741 gcaaatagca aaaactgtgc tggtgcaaaa ttaaatccaa atattgtagg aaaaccagct
 7801 acttggattt cagcacaagc tggatttact gttccagaag gaaccaatat tcttgctgca
 7861 gaatgtaaag aagtttcaga aaatgagcct ttaacacgtg aaaaattatc tccagtcatt
 7921 gctgtttttga aatctgaatc acgtgaagac ggtgttgaaa aagctcgtca aatggttgaa
 7981 tttaatggac tcggtcactc agctgccatt catacagcag atgcagagtt ggcaaaagaa
 8041 tttggaacta gaatccgtgc tatccgcgtc atctggaatt caccttctac atttggtggt
 8101 atcggggatg tttacaatgc tttcttgcca tcattgactc ttggttgtgg ttcgtatgga
 8161 cgtaacgcag ttggtgataa cgttagtgct ataaatctct tgaacatcaa aaaagtagga
 8221 agacgtagaa ataatatgca atggtttaaa gttccttcaa aaacatactt cgaacgtgat
 8281 tcaattcaat atttgcaaaa atgtcgtgac gttgaacgtg tcatgattgt tacagatcac
 8341 gctatggttg agcttggttt cttggatcgt atcattgaac aacttgatct tcgtcgcaat
 8401 aaagttgttt atcagatctt tgctgaagta gaaccagatc cagacattac aactgttatg
 8461 aaaggtactg aattaatgcg taccttcaaa ccagacacca ttattgccct tggcggggga
 8521 tctcctatgg atgcagccaa agttatgtgg ctcttttatg aacaaccaga agttgatttc
 8581 catgacctcg ttcaaaaatt catggatatc cgcaaacgtg cgttcaaatt cccagaactt
 8641 ggtaagaaaa caaaatttgt tgctatccca acaacttctg gaacaggttc agaggtgaca
 8701 ccatttgccg ttatctctga caaagcaaat aatcgtaaat atccaatcgc tgattactca
 8761 ttaacaccaa ctgtagccat tgttgaccca gctttggtat tgactgttcc aggctttatt
 8821 gctgctgata ctggtatgga cgttttgaca cacgcaaccg aagcttacgt gtcacaaatg
 8881 gccaatgact ttacggatgg tttagctctt caagccatta aaattgtttt tgataatctt
 8941 gaaaaatcag ttaaaacagc cgattttgaa gcacgtgaaa agatgcacaa tgcgtcaact
 9001 atggcaggta tggctttcgc caatgcattc ttaggtattt ctcactcaat ggcgcataaa
 9061 attggcgcac aattccatac cgtacacgga cgtacaaatg caattctttt gccgtatgtt
 9121 atccgctata atggaactcg tccagctaaa acagcaacat ggcctaagta taattactac
 9181 cgtgcggatg aaaaatacca agacattgcg aaattgttag ggctttcagc ttctacacca
 9241 gaagaagcag tggaatctta tgcgaaagct gtttatgatc tgggttgccg agttggtatt
 9301 caaatgaact tcaaagctca aggtatcgac gaaaacgaat ggaaagaaca ttctcgtgaa
 9361 ttggcttacc ttgcttatga agaccaatgt tcacctgcta acccacgtct tccaatggtt
 9421 gatcacatgc aagaaattat tgaagatgct tactatggtt atgctgaacg tccaggacga
 9481 cgtaagtgat tttttaatgtt gataccagga aatgatttct tatgattaaa gtcataagaa
 9541 atcatttat tttctaaata tatcatttat atccagtgtc agaaatgta gttaagtatt
 9601 ttggcagata ggcaaacagc tataagatta accggttaag tttcagaaac ttttcaggtt
 9661 tctgttgact ttcattgtga aaagatgtac aatttatttg taaccgatta caaataagtc
 9721 attattagat ggaggactga tatgaaagcc gtagttgtta atcaagctag tacaggtgtc
 9781 gaagttgttg agcatgatct tccaaatgtt ggtcatggtg aagcgcttgt taaagtagaa
 9841 tactgtggtg tttgtcatac tgatttacac gttgcacatg gcgattttgg tcaggtacca
 9901 ggacgtattt tggggcacga aggtattggt atagtagaag aaattggaga aggcgtaaca
 9961 tccttaaagg ttggtgatcg tgtctctatt gcatggttct ttgaaggatg tggtcattgc
10021 gaatactgta ctacaggacg tgagacactt tgtcgtagtg ttaaaaatgc tggatacagt
10081 gttgatggag gaatgagtga atatgcagta gtaacagctg attatgcagt taaagttcca
10141 gaaggtttag acccggctca agcttcttcc attacttgtg ctggtgtaac aacttataaa
10201 gctattaaag aggcaggtgc tgctccaggc caatggattg ttatctttgg ggcaggtggc
10261 cttggaaatc tggctgttca atacgctaaa aaagtcttta atgcacatgt tgtcgcagtg
10321 gacattaata atgataaact tgagttagct aaagaagttg gcgcagatat tgtagttaac
10381 ggcaaagaaa ttgaagatgt tccaggctat attcaagaaa aaaccggtgg agcacatggt
10441 gttgtggtaa cggctgtttc taaagttgct tttaaccaag caattgatag tgtccgtgcc
10501 ggtgggacag ttgtagccgt aggtcttcca tcagaataca tggaactgtc tatcgtaaaa
10561 actgttttag atggtatcaa agtggtcgga tcacttgtag ggacacgtaa agacttggaa
10621 gaagcctttg cctttggtgc agaaggtctg gttgttccgg ttgtcgaaaa agttccagtt
10681 gacactgctc cagaagtctt tgatgaaatg gaacgtggtt taatccaagg gcgcaaggtc
10741 ttagatttca tcagctaaac atacaaatgt attaaatatg agataagcct aagttgttta
10801 aacttgattc caaataaaat agcactctcg agtatcagaa aacatttttg actcgagagt
10861 gctattttga tacattgaaa gttgctaaat gaagaatata ttatataata gaaaaaattc
10921 gtttggagtc cttttgttct tcgtcttctt agttataaac gttaggtaaa tgttaaggat
10981 tggcatgtgg tcaattgttg ctgtagcact aagtgtcgtg tatcttggga ctctgctatt
11041 aagatagact ttatgaattc attaatggac caaataact gaatgagtcc agtgactgtg
11101 tttgaaaaaa tcgtttgatc aagaattttt tattagggga cataaatgat atatagtaga
11161 agaaaaattt tctctttagc tctgccttct atgatagaaa atatttttaca gatgttaatg
11221 ggaatggttg ataattacct ggtggctcaa attggacttg tagcagtctc tggcgtctcc
11281 atagctaaca acattatcag tatttatcag tccctctta tcgcgctggg agctgctgta
11341 tctagtctga ttgctcgaag tattggagaa aataatcaga acaaacaatt aaactatatg
```

```
11401 gcaggtgtct tgcaagtaac actcctcctt tcggtcggct tagggttgtt atcagttgtt
11461 ggacatcatc aggtgttaga atggctagga gctgaagctt ctgtaacatt ggttggaggg
11521 cgatatctat ccattgtcgg cggtatgatt gttagtctag gactttaac tagcttagga
11581 gctattgttc gagctcaagg gtatcctaag attcctatgc aggtgagctt attaataaac
11641 gtactcaatg ccattttttc tgccttgtct atctatgtat ggggatttgg tcttcttggt
11701 gttgcttggg cgacggtttt atctcgttta gtgggtgtgt ttttactttg tcagtttatt
11761 cctattaaac aggttgcgaa acgattgatg agacctttgg acaaaattat ttttgattta
11821 tcactacctg ctgctggtga acgtttgatg atgagagcag gagatgtcct aattattggc
11881 attgttgttc gctttgggac aacggccttg gcaggtaatg ctattggaga aaccttgact
11941 cagtttaatt acatgcctgg cttagccatg gcaacggcaa caattattct agtggctagg
12001 caactggggg gcggtaaggt gactgagata aggtatatta ttagagaagc ttttattta
12061 tccaccctca tgatgctggt tatgggagcc ttgacctatc tgctaggtcc tagcctcttg
12121 ccgctattta ctcagaatac tgatgctcaa aggtccgcca tggttgtttt actttttct
12181 ttactaggag ctcccgcaac ggcaggcact ttagtttata cagccgtctg gcagggtttg
12241 ggaaaagcaa agcttccttt ctatgcaaca accataggaa tgtgggtgat tcggattggc
12301 cttggttatg tgattggtgt ggtttggcaa tatggactca taggggtctg gatggcgaca
12361 gtgttagata ataccagtcg gtggtttatt ctctctaaac aatttaaaaa gtaccaagaa
12421 attacctttc attaggaagg tagttttttt gaaaaaaatg cctaaaaagc ttgcaatgac
12481 taaatgattc tgttattata ttgtggtgct gtaaaaatac agctttagca atgatacaag
12541 aggttgcgac acgctcggtt gcattgccac gcaacaggtg tcggtttttct tgaggagcta
12601 gcctattatc gtaaatagac gagaggagaa aagatggcaa acaaaaaaat ccgtatccgt
12661 ttgaaagcgt acgaacaccg tacacttgat acagcggcag aaaaaatcgt tgaaactgca
12721 acacgtacag gtgctacagt tgctggacca gttccacttc caactgaacg cagtctttac
12781 acaattattc gtgcgactca caaatacaaa gattctcgcg aacaatttga aatgcgtaca
12841 cacaaacgtt tggtagacat catcaatcca acacaaaaaa ctgttgatgc tttgatgaaa
12901 cttgatcttc caagtggtgt caacgtagaa atcaaacttt aatcggtgag attttgcaag
12961 tacagttagt gtttgatgga acttgaacac gagctaaact ctacatgaaa aagataaatc
13021 ttcctcgaaa cagaagtttt tgtgttagat tttctatttt tattttgagt ttgacgctct
13081 ttgtatcttg ctatgagcac aaaaaacgct cgtaaaaaac tttttgagc acaaaaaacg
13141 ctcataaaaa acttttttgaa atattattaa gaaaaggaaa tattttctca tgacaaaagg
13201 aatcttaggg aaaaaagtgg gaatgactca aatcttcact gaatcaggcg aattcatccc
13261 tgttactgtc attgaagcaa ctccaaacgt tgtgcttcaa gttaaaactg ttgaaacaga
13321 cggttatgaa gcagttcagg ttggttttga tgacaaacgt gaagtcttga gtaacaaacc
13381 tgccaaaggc catgttgcaa aagcaaacac agctcctaag cgcttcattc gtgaattcaa
13441 aaacattgaa ggcttagaag ttggtgcaga attatctgta gaacaatttg aagctggtga
13501 tgttgttgac gtcacaggga catcaaaagg taaaggtttc caaggtgtta tcaaacgcca
13561 tggtcaatca cgtggtccta tggctcacgg ttctcgttac catcgtcgcc caggttctat
13621 gggacctgtt gcgcctaacc gcgttttcaa aaacaaacgc ttggcaggac gtatgggtgg
13681 taaccgtgta acagttcaaa accttgaaat tgtacaagtt atcccagaaa agaacgttat
13741 ccttgttaaa ggtaacgtac caggtgctaa gaaatctctt atcactatca agtcagcagt
13801 taaagctgct aaataataag aaaggagaaa acagttaaaa tggcaaacgt aaaactattt
13861 gaccaaactg gtaaagaagt tagctcagtt gaattaaacg acgctatctt cggtatcgaa
13921 ccaaacgaat cagttgtttt tgatgttgta attagccaac gcgctagcct tcgccaaggt
13981 actcatgcgg ttaaaaatcg ttcagcagta tcaggtggtg gacgtaaacc atggcgtcaa
14041 aaaggaactg gacgcgctcg tcaaggttct atccgctcac cacaatggcg tggtggtggt
14101 gttgtctttg gaccaactcc ccgttcatac ggatacaaac ttccacaaaa agttcgtcgc
14161 cttgcgttga atcagtttta ctcagcaaaa gttgctgaag ataaatttgt agctgtagaa
14221 ggcctttcat ttgcagcacc aaaaactgct gaatttgcaa aagtgctttc agctcttagc
14281 attgatacaa aagtacttgt tcttgttgaa gaaggaaatg aatttgcagc actttctgca
14341 cgtaaccttc caaacgtaac tgttgcaact gcagcaactg caagtgttct tgatatcgtg
14401 aacgcagaca aacttcttgt tactaaagaa gcaatctcta caattgagga ggttctttca
14461 taatgaattt gtacgacgta atcaaaaaac cagttatcac tgagaagtca atgattgctc
14521 ttgaagcagg caaatacact ttcgaagttg atactcgtgc acacaaactt ttgatcaaac
14581 aagctgttga agctgctttt gacggagtta aagttgcaag tgtaaatact gttaacgtta
14641 aaccaaaagc aaaacgcgtt ggtcgttaca caggtttcac ttcaaaaact aaaaaagcta
14701 tcatcactct tacagctgat tctaaagcaa tcgagttgtt cgcagctgaa gctgaataat
14761 ctaaggagga aataacgtgg gtattaaagt ttataaacca acgacaaatg ccgtcgtaa
14821 catgacttct ttggatttcg cggaaatcac aacaagcacg cctgagaaat cattgcttgt
14881 ttctcttaag agcaaagctg gtcgtaacaa caatggtcgc atcacagttc gtcaccaagg
14941 tggtggacac aaacgtcatt accgtttgat cgacttcaaa cgtaacaaag atggcgttga
15001 agcagttgtt aaaacaatcg aatatgatcc aaaccgtact gcaaacatcg cacttgtaca
15061 ttacactgac ggtgtgaaag cttacatcat tgcacctaaa ggtcttgaag taggtcaacg
15121 tattgtttct ggtccagatg ccgacatcaa agttggtaac gcacttccat tagcaaacat
15181 tcctgtcggt acagttgttc acaatattga gttgaaacct ggtaaaggtg agaacttgt
15241 tcgtgcagct ggagcttctg ctcaagtact tggtcaagaa ggtaaatacg ttcttgttcg
15301 tcttcaatca ggcgaagttc gtatgattct tggtacatgc cgtgcaacta tcggtactgt
```

```
15361 tggtaacgaa caacaatcac ttgttaacat tggtaaagca ggacgtagcc gttggaaagg
15421 tatccgccca acagttcgtg gttctgtaat gaaccctaac gatcacccac acggtggtgg
15481 tgaaggtaaa gcaccagttg gacgtaaagc gccatcaact ccatggggta aaccagcgct
15541 tggtcttaaa actcgtaaca agaaagctaa atcagacaaa cttatcgttc gtcgtcgtaa
15601 cgaaaaataa ttttagtaag ttgcttaaaa cttgctgaaa tagcgttaca atagctttgc
15661 tatttattcc gccaactcgg tagagtttgg agtcttgctc ttgaactcaa gccgctgtgg
15721 tacattattt aaaggagaaa actacaaaat gggacgtagt cttaaaaaag gacctttcgt
15781 cgatgagcat ttgatgaaaa aagttgaagc tcaagcaaac gacgaaaaga aaaaagtaat
15841 caaaacttgg tcacgtcgtt caacgatttt cccaagtttc atcggatata caatcgcagt
15901 ttatgacgga cgtaaacatg tacctgttta catccaagaa gacatggtag gtcacaaact
15961 tggtgaattt gcaccaacgc gtacttacaa aggtcacgca gctgacgaca agaaaacacg
16021 tcgttaatag gaggaggaca caatggcaga aattacttca gctaaagcaa tggctcgtac
16081 agtgcgtgtt tcacctcgta aaacacgttt agtacttgat cttatccgtg gtaagaaagt
16141 tgctgacgca atcgcaatct taaaattcac tccaaacaaa gcagctcgtg ttattgagaa
16201 aactcttaac tcagcaattg ctaacgcaga aaacaacttt ggtttggaaa aagcaaactt
16261 ggtagtatct gaaacattcg ctaacgaagg accaacaatg aaacgtttcc gtccacgtgc
16321 gaaaggttca gcttcaccaa tcaacaaacg tacaactcac gtaactgtag ttgtatcaga
16381 aaaataagga ggtaaaatcg tgggtcaaaa agtacatcca attggtatgc gtgtcggaat
16441 catccgtgac tgggatgcga aatggtatgc tgaaaaagaa tacgcggatt accttcatga
16501 agatcttgca atccgtaaat tcattaataa agaattagct gacgcatcag tttcaactat
16561 tgaaattgaa cgtgcagtaa acaaagttat tgtttcactt cacactgcta aaccaggtat
16621 ggttatcggt aaaggtggcg caaacgttga cgctcttcgt ggtcaactta acaaattaac
16681 tggaaaacaa gtacacatca acatcatcga aatcaaacaa cctgatttag atgctcacct
16741 tgttggtgaa aatattgctc gtcaacttga gcaacgtgtt gctttccgtc gtgctcaaaa
16801 acaagcaatc caacgtacaa tgcgtgcagg agctaaaggg attaaaactc aagtttctgg
16861 tcgtttgaac ggtgctgata tcgctcgtgc tgaaggttat tcagaaggaa ctgttccact
16921 tcacacgctt cgcgctgata tcgactatgc ttgggaagaa gctgacacaa cttatggtaa
16981 acttggcgtt aaagtttgga tttaccgtgg agaagttctt ccagctcgta aaaacactaa
17041 aggaggcaaa taacaaatgt tagtacctaa acgtgttaaa caccgtcgcg aattccgtgg
17101 aaaaatgcgc ggtgaggcta aaggtggtaa agaagtttca ttcggtgaat acggacttca
17161 agccacaact agccactgga ttacaaaccg tcaaatcgaa gctgcccgta ttgcgatgac
17221 tcgttacatg aaacgtggtg gtaaagtttg gattaaaatc ttcccacaca aatcatacac
17281 tgcaaaagct atcggtgtac gtatgggttc tggtaaaggg gcacctgaag gttgggtagc
17341 accagttaaa cgtggtaaag tgatgtttga aattgctggt gtttctgaag aaaattgctcg
17401 cgaagcatta cgtcttgcta gccacaaatt accagttaag tgcaaattcg taaaacgtga
17461 agcagaataa ggagaagaca tgaaacttca agaaattaaa gattttgtta aagagcttcg
17521 tggattgtct caagaagaac ttgctaagaa agaaaacgaa ctcaaaaaag aattgtttga
17581 tcttcgtttc caagctgcag caggtcaact tgaaaagact gctcgccttg acgaagttaa
17641 gaaacaaatt gcacgtgtta aaactgtgca atcagaaatg aaataataga ttgggaaagg
17701 agaaattcta aatggaacgt aatcaacgta aaactcttta cggacgcgta gtgtctgaca
17761 agatggacaa aacaatcaca gttgtagttg aaactaaacg taaccaccca gtctatggta
17821 aacgtatcaa ctattctaaa aaatataaag cacatgacga aaacaacgtt gctaaagaag
17881 gcgatatcgt tcgtatcatg gaaactcgcc cactttcagc tacaaaacgt ttccgtcttg
17941 tggaagtagt ggaaaaagct gttattatct aatcaaacta aaaggagaaa attgaaatga
18001 ttcaacaaga aactcgcttg aaagttgctg ataatagcgg tgctcgtgag atcttgacta
18061 tcaaagtact tggtggttca ggacgtaaat tcgctaacat cggtgacgta atcgttgctt
18121 ctgtaaaaca agctactcct ggtggagcag ttaaaaaagg tgatgtggtt aaagctgtta
18181 tcgttcgtac aaaaactggt gcacgccgtc cagacggttc atacatcaaa tttgacgaca
18241 atgctgctgt aatcatccgt gatgataaaa ctcctcgcgg aactcgtatc tttggcccag
18301 ttgcacgcga attgcgtgag ggtggctaca tgaagatcgt atcacttgca ccagaagtac
18361 tttaatctca ggttaacaaa cgtagtcccc taggttttcc tagggtgccc atcggggcgt
18421 aagaaataat aggagaaacc agaatgtttg taaaaaaagg cgacaaagtt cgcgtaattg
18481 ctggcaagga caaaggcact gaagctgtag ttcttaaagc acttccaaaa gttaacaaag
18541 ttattgttga aggtgttgga atgattaaaa aacaccaaaa acctaacact gaaaatcctc
18601 aaggagctat cgtcgaaaaa gaagcaccta tccatgtctc taatgttcaa gtattagata
18661 aaaatggtgt agctggacgt gttggttata aagttgttga cggtaaaaaa gtacgttaca
18721 gcaaaaaatc aggcgaagtg cttgattaat cacgaaggaa aggagaagca taatggcaaa
18781 tcgtttaaaa gaaaaatata ctaacgaagt aattcctgcg ttgacagaga aattcaatta
18841 cacatcagtt atggctgtgc caaaagttga gaaaattgtt ctcaatatgg gtgttggtga
18901 tgctgtatcc aacgcaaaaa acctagagaa agctgcagct gaattagcac ttatctcagg
18961 tcaaaaacca cttattacta aagctaagaa atcaatcgct ggcttccgtc ttcgtgaagg
19021 tgtagcgatc ggtgcaaaag ttaccctccg tggcgaacgt atgtacgaat cctagacaa
19081 attggttagc gtttcacttc ctcgtgtacg tgacttccat ggcgttccaa caaaatcgtt
19141 tgatggacgc ggaaactaca ctctcggtgt gaaagaacaa cttatcttcc cagaaatcag
19201 ctttgatgat gttgataaag tacgtggtct tgatattgta atcgtcacta ctgcaaatac
19261 tgacgaagaa tcacgtgaat tgcttaaggg ccttggaatg ccttttgcaa aataataggg
```

```
19321 ggtaaataaa ttggctaaaa aatctatgat tgctaagaac aaacgtcctg caaaacactc
19381 tacacaagct tatactcgct gtgaaaaatg tggacgtcca cattcagttt accgcaagtt
19441 taaactttgt cgtgtttgct tccgtgaatt ggcttacaaa ggtcaaattc caggtgttgt
19501 caaagcttct tggtaaaaat atgacacaaa acttaatttg ttcttcagat taagtcttgt
19561 gcttaattaa aacggtgtga gcataagctg ataccaaagt cctttaagga caacattaac
19621 tagtaagtga tagcatcaaa ctgctagtaa gaggagaata taaaaaatgg ttatgactga
19681 cccaattgca gactttttaa cacgtatccg taatgctaat caagtaaaac acgaagtgtt
19741 agaagtacct gcttcaaaca ttaaaaaagg gattgctgag attcttaaac gtgaaggttt
19801 tgtaaaaaat gttgaagtta tcgaagatga taaacaaggc atcattcgtg tgttcttaaa
19861 atacggaaaa aatggtgagc gtgttatcac taacttaaaa cgtatttcaa aaccaggtct
19921 tcgcgtttac gcaaaacgtg atgacatgcc taaagttctt aacggacttg gaattgcaat
19981 catttcaaca tcagaaggtc ttttgactga caaagaagct cgccaaaaga atgttggtgg
20041 agaagtgatc gcttacgttt ggtaatttaa gatactaaga gcgtcgtgga caaagtgaaa
20101 ataggaaatc tgacgtagcg tgtttacact caaggaagat ttatctttt cacacagacc
20161 acagctcgtg ttcaattttg aaatataaat tgaagtatat cattctatca aaccccgtg
20221 aaaactagtc gctatgcggc ttgacaattt aacaggagaa aataaacatg tcacgtattg
20281 gtaataaagt aattactatg cctgcaggcg ttgaattaac aaataacaac aatgttatta
20341 ctgttaaagg ccctaaaggc gaactcactc gtgagtttaa caaaaatatt gaaatcaaag
20401 ttgaagggac tgaaatcaca gttgtacgtc ctaacgactc aaaagaaatg aaaacaatcc
20461 atggtacaac ccgtgctaac ttgaataaca tggttgtagg tgtttctgaa ggtttcaaaa
20521 aagatcttga aatgaagggt gtcggttacc gtgctcaact tcaaggtact aaacttgtcc
20581 tttcagtagg taaatctcac caagacgaag ttgaagctcc agaaggaatt actttcactg
20641 ttgctaaccc aacttcaatc tcagttgaag gaatcaacaa agaagttgtt ggtcaaacag
20701 ctgcttacat ccgtagcttg cgttcaccag agccttacaa aggcaaaggg atccgttacg
20761 ttggtgaata cgtacgcctt aaagaaggta aaacaggtaa ataatgttct tagtcgggta
20821 tgggaagtat tgcaccttaa catgctcgat aagttcaatc gacaacttgt caatgagaca
20881 aattgattaa aattaagagg tgaaaattgt gatttcgaaa ccagataaaa acaaaatccg
20941 ccaaaaacgc caccgtcgcg tccgcggtaa actctctgga actgctgatc gcccacgttt
21001 gaacgtattc cgttctaata caggcatcta cgctcaagtt attgatgacg tagcgggtgt
21061 aacgctcgca agtgcatcaa ctcttgataa agacgtttct aaaggaacaa aaacagaaca
21121 agccgttgta gtcggcaaac ttgttgctga acgtgcagtg gctaaaggta tttctgaagt
21181 ggtgtttgac cgcggtggat atctctatca cggacgtgtt aaagccttgg ctgatgcagc
21241 tcgtgaaaac ggattgaaat tctaataggg aggacacaaa ataatggcat ttaaagataa
21301 tgcagttgaa cttgaagaac gcgttgttgc gattaaccgc gttacaaaag ttgttaaagg
21361 tggacgtcgt cttcgctttg cagctcttgt agttgttggt gatggaaatg tcgtgttgg
21421 atttggtact ggtaaagctc aagaagttcc agaagctatc cgtaaagcag ttgaagctgc
21481 taagaaaaac atgatcgaag taccaatggt tggtacaaca atccctcacg aagtttacac
21541 taacttcggt ggagctaaag tattattgaa accagctgta gaaggttctg gagttgctgc
21601 tggtggtgca gttcgtgccg tcatcgaatt agcaggtgtt gctgatatta cttcaaaatc
21661 tcttggttca aacactccaa tcaacattgt tcgtgcaact gttgaaggat tgaaacaact
21721 taaacgtgca gaagaagttg ccgcacttcg tggcatctca gtttctgact tagcataaga
21781 aaggggatca tcatggctca aattaaaatt actttgacta agtctcctat cggacgtaag
21841 ccagaacaac gtaaaactgt tgttgctctt ggacttggta aattaaactc ttcagtagtc
21901 aaagaagata tgctgctat ccgtggtatg gtgacagcta tttctcactt ggttaccgtt
21961 gaagatgtta aataagttat aactgtgaaa tctctgattt cataattaaa aatgagcaca
22021 aaaccgactc ttgtagtttg ctttttttagc aacaaacagt agtcggttag tgcgtatctg
22081 tattaagtta ttttggataa cttaagtatc attaatgtat aggcgagttt ctatagggag
22141 tccttttccc tcatagaggc gctagcattt tacaaaaaaa aggagaaaaa atgaaacttc
22201 atgaattaaa agctgctgaa ggctcacgta aagtacgtaa ccgtgttggt cgtgggacat
22261 catcaggtaa tggtaaaaca tctggtcgcg gtcaaaaagg tcaaaaagct cgtagcggtg
22321 gcggtgtacg tttaggtttt gaaggtggac aaacaccatt gttccgtcgt attccaaaac
22381 gtggcttttac aaatattaat actaaagaat atgcacttgt gaatcttgat caactgaatg
22441 ttttttgatga tggtacagaa gtgactccgg ctattttaaa agatgctggt attgtccgag
22501 ctgaaaaatc aggcgttaaa gtgcttggta acggtgaatt gactaaaaaa ttgactgtaa
22561 aagcagctaa gttctcaaaa tctgctgaag cagctattat tgctaaaggt ggttcaatcg
22621 aagtcatcta atgaggggat actcattatg ttcttaaaaa tactaaaaga cgcgttaaag
22681 ataaagactg tacggaataa aattttcttt actatattta tcattcttgt attccgaatt
22741 gggacacata ttaccgtacc tggtgtaaat gccaagagct tagagcaatt aagtgaactc
22801 cctttcttaa atatgttaaa cttagttagt ggtaatgcga tgagaaattt ctcagtattt
22861 tcaatggggg ttagcccata tattactgct tctatcgttg ttcagttatt gcagatggat
22921 attttaccta gtttgttga gtggggcaaa caaggtgagg ttggacgtcg taaattaaat
22981 caagcgacgc gctatatttc acttgttttg gcttttgccc aatccattgg tatcactgca
23041 gggtttaata ctttgtcgaa cgttgcactt gttaagacac cagacatcaa aacatattta
23101 ctgatcgggg cattactgac aacaggtagc gttattgtta cctggcttgg agaacaaatc
23161 acagataaag gatttggtaa tggcgtatca atgattatct ttgcgggtat tatttcgtct
23221 attccaagtg caattgcaac aattcgtgaa gactattttg taaatgttaa ggcaagtgat
```

```
23281 ttacactcgt cttatctcat tgttgggatt ttaatcatag ctgttcttgc tattgttttc
23341 tttacaacat atgtccaaca agcggaatat aaaattccaa tccaatacac aaagctaatg
23401 caaggtgcac ctacaagttc atatcttcca ttaaaagtaa atccagccgg cgttattccc
23461 gttatctttg ctagctcgat tacaactatc ccaagtacga ttattccttt tgttcaaaat
23521 ggtagagatt taccgtggtt aaaccgtttg caagaaattt ttaattatca aactccagtc
23581 ggaatgatag tttacgcctt gttgattata ttgttctcat tcttctatac ctttgtacaa
23641 gttaatcctg agaagacagc agaaaatctt cagaagaatt cctcatatat accaagtgtt
23701 cgccctggac gtgagacaga acaatttatg tccgcattgc taaaaaaact agcaaccgta
23761 ggagctatct tcttagcatt tatctcttta gcgccaatag cagcacaaca agctctcaac
23821 ctttcttcta gtattgcttt aggtggaact agtttgctca ttttgatttc aactggtatc
23881 gaaggtatga aacagcttga ggggtatctt ctaaagagaa aatatgtcgg atttatgaat
23941 acagcagaat agaatacagg ttgacattgt caaccttcta ttttgttttt aaatgacaat
24001 aagacttggt tatcatcaaa cgatttcttg ttgccatttg aaaacaaaaa ccaaggaaaa
24061 taatttccta ctatgtattt attttaaaag aggaggaaaa gatgaatctt ttaatcatgg
24121 gtttgccggg agctggtaaa gggacccaag cagctaagat tgttgaagaa tttggtgttg
24181 ctcacatctc aacaggggat atgttccgcg ccgcaatggc taatcaaacc gaaatgggac
24241 gtttagctaa aagttatatt gataaaggtg aattggttcc tgatgaagtc acaaacggga
24301 ttgtaaaaga gcgcttagct gaggatgata tcgcagaaaa aggtttttg cttgatgggt
24361 atccacgtac tattgaacaa gcacacgcct tagatgcaac acttgaagaa ctaggactcc
24421 gcttagatgg tgttattaat attaaagtag atccatcatg tcttgtagag cgtttgagtg
24481 gtcgtattat caatcgtaaa actggtgaaa cgttccataa agtgttcaac ccaccagtag
24541 attataaaga agaagattac tatcaacgtg aagatgataa gcctgaaact gttaaacgtc
24601 gtttggacgt caatatggct caaggagaac ctattcttga acactatcgt aagcttggtc
24661 ttgttacaga tattgaaggt aatcaagaaa taacagacgt ttttgcagat gttgaaaaag
24721 cgttgctaga actcaaataa attatactaa tctacttgca taagtagatt agtaatgata
24781 tactagttta gtctgactta taattgttac ctctgtgctc agaggacatc aaatcgaaat
24841 ttaggggta cttttgcgtg gcaaaagaag acgtgattga aattgaaggc aaagtagtag
24901 aaacgatgcc aaatgcaatg tttactgttg aattggaaaa tggacatcaa attctagcaa
24961 ctgtatcagg aaaaatccgc aaaaattaca ttcgtatttt agtaggtgac cgtgttacag
25021 tagaaatgag tccttatgac ttgacacgtg gacgcatcac ataccgcttt aaataatcga
25081 aataattgga gggattaaaa catgaaggta agaccatcgg ttaaaccaat ttgcgaatac
25141 tgtaaagtta ttcgccgtaa tggtcgtgtt atggtaattt gtccgacaaa tccaaaacac
25201 aaacaacgtc aaggataaaa tagaaaggag aaaaaatggc tcgtattgct ggagttgata
25261 ttccaaatga taaacgcgta gtaatttcac ttacttatgt ttacggaatt ggtcttgcaa
25321 catctaaaaa aatcttagca gctgcaggta tttctgaaga tatccgtgtt aaagatttaa
25381 catcagatca agaagatgct atccgtcgtg aagtggatgc aatcaaagtt gaaggtgacc
25441 ttcgacgtga agtaaacatg aacattaaac gtttgatgga aatcggttca taccgtggaa
25501 tccgtcatcg tcgtggactt cctgtccgtg gacaaaatac taaaaacaat gctcgcactc
25561 gtaaagggaa agctgttgcg attgcaggta agaaaaaata aaataggagg taaaacaatt
25621 ggctaaacca acacgtaaac gtcgtgtgaa aaagaacatc gaatctggtg ttgcacacat
25681 tcacgctaca tttaataaca ctattgttat gattacagat gtgcatggta atgctcttgc
25741 atggtcatca gctggtgctc ttggtttcaa aggttctcgt aaatctactc catttgctgc
25801 tcaaatggct gcagaagctg ctgcaaaatc tgcacaagaa cacggactaa aaactgttga
25861 agtgactgta aaaggtcctg gttcaggtcg tgaatcagct attcgtgctc tagcagctgc
25921 aggtcttgaa gtaactgcaa ttcgtgatgt gaccctgtg ccacataatg gtgctcgtcc
25981 tccaaaacgt cgtcgtgtat aatcatataa caaatagtac acaagtttcg tttcgagggg
26041 tgaaaaatg attgagtttg aaaaaccaat aataacaaaa attgatgaaa ataaagatta
26101 cggtagattt gtcatcgaac cacttgaacg tggctacgga acaactctag gtaattctct
26161 tcgtcgtgta ctcttgtctt cacttccagg tgcagcagta acatcaatta aaattgatgg
26221 agtactacac gaatttgata caatcccagg tgtacgtgaa gatgtcatgc aaattatcct
26281 taatgttaag ggacttgctg tgaaatcata cgtcgaagac gaaaagatta tcgaacttga
26341 agtagaagga ccagcagagg taacagctgg tgatattctt actgacagtg atatcgaact
26401 tgttaacccg gatcattatc tttttacaat cgctgaagga cattctctac gtgcaacaat
26461 gactgttgct aaaaaacgtg gttatgtgcc agcagaagga acaaaaaag atgatgcacc
26521 tgtgggtaca ttggcagtag attcaatcta tacgccagtt aaaaaagtta attatcaagt
26581 tgaacctgcc cgtgtaggta gcaatgatgg ctttgataaa ttaacgattg aaatcatgac
26641 aaacggaaca attattcctg aagatgcttt aggtctatct gctcgagttt tgatcgaaca
26701 cttaaacctg tttactgatt taacagaggt tgcaaatct accgaagtaa tgaaagaaac
26761 tgaaaaagtg aacgatgaaa aggtacttga ccgcaccatc gaggagcttg atttatccgt
26821 acgctcatat aactgtttaa aacgtgcagg cattaacact gtcttcgact aacagaaaa
26881 atctgagcct gaaatgatga aagtccgtaa tcttggacgt aagagccttg aagaagttaa
26941 ggttaaactt gctgacttag gtctcggact aaaaaacgat aaataatata ggaggacaaa
27001 atggcttacc gtaaactagg acgcactagc tcacaacgta aagcaatgct tcgtgatttg
27061 acgacagatc ttttgatcaa cgaatcaatt gtaacgacag aagcacgtgc aaaagaaatc
27121 cgtaaaacag ttgaaaaaat gattactctt ggtaaacgtg gtgatcttca tgctcgtcgc
27181 caagcagctg catacgttcg taacgaaatc gcatcagaaa attatgatga agctaccgat
```

```
27241 aaatacacat caacgacagc tcttcaaaaa cttttctcag aaattgcacc tcgttatgca
27301 gaacgtaacg gtggatacac tcgtattctt aaaacagaac cacgccgtgg agatgctgct
27361 ccaatggcaa ttattgaatt agtttaattt ttatcaattt tgttgagtgt tatgatgatg
27421 gagtaatcga gagattattc ttagtctagc tctggtctac cgctaggatt tttcctagcg
27481 ggaacactca tcatattgtt aatatgtaac gcttgtttat gaaaggtatc taagctatag
27541 aaactttta taagcaggcg ttttgttgta ttatgaggtg acactcccgc ttttaagctg
27601 agtaaaacaa taacacagaa gcctcttctg atgcgtttat aaagtttct cagagacaat
27661 aaggtcatta gaataagaaa accttatgca ggtgtttaaa gacctctcat gggcaaataa
27721 acggtgtaat cccctcattt aaatgttcga aaaaatactt gcatcgcaaa cagatgctca
27781 aactatattg ttagttttat cccctattca atatttattt aataagtatt ttaaaatcct
27841 cttttaattt ggaggtgaaa atatctttt tacttttaaa atctgtcact ttaagccgtt
27901 tccaacaaaa ttgtaaaaaa gtacaaaaaa agtaaaaaaa agagttgaca atgacagtaa
27961 agatatcgta tactaataaa gctgtcagag aggttcctgt aacacactta ttgaaaaaag
28021 atgaaaaagt agttgacagg ctatgagaaa cctgatagaa taaagaagtt gtctcttagg
28081 agacgttaag acctttgaga actgaataag acgaaccaaa cgtgagggtg atatggagac
28141 atattacccg tcaagaaacg agaaataaat ctgtcagcga cagaaggaac gagtaagttc
28201 aaacgcaaat taaagagagt ttgatcctgg ctcaggacga acgctggcgg cgtgcctaat
28261 acatgcaagt agaacgctga gaactggtgc ttgcaccggt tcaaggagtt gcgaacgggt
28321 gagtaacgcg taggtaacct acctcatagc gggggataac tattggaaac gatagctaat
28381 accgcataag agagactaac gcatgttagt aatttaaaag gggcaattgc tccactatga
28441 gatggacctg cgttgtatta gctagttggt gaggtaaagg ctcaccaagg cgacgataca
28501 tagccgacct gagagggtga tcggccacac tgggactgag acacggccca gactcctacg
28561 ggaggcagca gtagggaatc ttcggcaatg ggggcaaccc tgaccgagca acgccgcgtg
28621 agtgaagaag gttttcggat cgtaaagctc tgttgttaga gaagaatgat ggtgggagtg
28681 gaaaatccac caagtgacgg taactaacca gaaagggacg gctaactacg tgccagcagc
28741 cgcggtaata cgtaggtccc gagcgttgtc cggatttatt gggcgtaaag cgagcgcagg
28801 cggttttta agtctgaagt taaaggcatt ggctcaacca atgtacgctt tggaaactgg
28861 agaacttgag tgcagaaggg gagagtggaa ttccatgtgt agcggtgaaa tgcgtagata
28921 tatggaggaa caccggtggc gaaagcggct ctctggtctg taactgacgc tgaggctcga
28981 aagcgtgggg agcaaacagg attagatacc ctggtagtcc acgccgtaaa cgatgagtgc
29041 taggtgttag gcccttccg gggcttagtg ccggagctaa cgcattaagc actccgcctg
29101 gggagtacga ccgcaaggtt gaaactcaaa ggaattgacg ggggcccgca caagcggtgg
29161 agcatgtggt ttaattcgaa gcaacgcgaa gaaccttacc aggtcttgac atcccgatgc
29221 ccgctctaga gatagagttt tacttcggta catcggtgac aggtggtgca tggttgtcgt
29281 cagctcgtgt cgtgagatgt tgggttaagt cccgcaacga gcgcaacccc tattgttagt
29341 tgccatcatt aagttgggca ctctagcgag actgccggta ataaaccgga ggaaggtggg
29401 gatgacgtca aatcatcatg ccccttatga cctgggctac acacgtgcta caatggttgg
29461 tacaacgagt cgcaagccgg tgacggcaag ctaatctctt aaagccaatc tcagttcgga
29521 ttgtaggctg caactcgcct acatgaagtc ggaatcgcta gtaatcgcgg atcagcacgc
29581 cgcggtgaat acgttcccgg gccttgtaca caccgcccgt cacaccacga gagtttgtaa
29641 cacccgaagt cggtgaggta acctattagg agccagccgc ctaaggtggg atagatgatt
29701 ggggtgaagt cgtaacaagg tagccgtatc ggaaggtgcg gctggatcac ctcctttcta
29761 aggaaatgga acacgtttat cgtcttattt agttttgaga ggtcttgtgg ggccttagct
29821 cagctgggag agcgcctgct ttgcacgcag gaggtcagcg gttcgatccc gctaggctcc
29881 atcaggatac aatcctacta aacttaatac aagtgaagtt gaacacgcaa ctcacttcct
29941 aggaaaatag acaatcttcg cttgtgtgca aggcacacat ggtcagattc ctaattttct
30001 acagaagttt cgctaaagcg agcgttgctt agtatcctat ataatagtcc attgaaaatt
30061 gaatatctat atcaaattcc acgatctaga aatagattgt agaaaagtaa caagaaaata
30121 aaccgaaaac gctgtgatta tttaataagt tttctagttt aaaaaaaact aggttaataa
30181 ggttaagtta ataagggcgc acggtggatg ccttggcact agaagccgaa gaaggacgtg
30241 acaaacgacg aaatgctttg gggagctgta agtaagcgct gatccagaga tgtccgaatg
30301 ggggaaccca ctaactaatg gttagtatcc ataactgtta aggttatgag aaggaagacg
30361 cagtgaactg aaacatctaa gtagctgcag gaagagaaag caaacgcgat tgccttagta
30421 gcggcgagcg aaacggcagg agggcaaacc gaagtgttta cacttcgggg ttgtaggact
30481 gcgacgtggg actttaaaag gatagaagaa ttacctggga aggtaagcca aagagagtaa
30541 aagcctcgta tttaaaattc ttttgagccc tagcagtatc ctgagtacgg cgagacacgt
30601 gaaatctcgt tggaatctgg gaggaccatc tcccaaccct aaatactctc tagtgaccga
30661 tagtgaacca gtaccgtgag ggaaaggtga aaagcacccc gggaggggag tgaaatagaa
30721 cctgaaaccg tgtgcctaca acaagttcga gcccgttaat gggtgagagc gtgccttttg
30781 tagaatgaac cggcgagtta cgatatgatg cgaggttaag ttgaagagac ggagccgtag
30841 ggaaaccgag tcttaatagg gcgatttagt atcatgttgt agacccgaaa ccatgtgacc
30901 tacccatgag caggttgaag gtgaggtaaa actcactgga ggaccgaacc agggcacgtt
30961 gaaaagtgct tggatgactt gtgggtagcg gagaaattcc aaacgaactt ggagatagct
31021 ggttctctcc gaaatagctt tagggctagc gtcgatgtta agtctcttgg aggtagagca
31081 ctgttgggt gaggggtcca tctcggatta ccaatctaga taaactccga atgccaacga
31141 gatatcatcg gcagtcagac tgcgagtgct aagatccgta gtcgaaaggg aaacagccca
```

```
31201 gaccaccagc taaggtccca aaataactgt taagtggaaa aggatgtggg gttgcacaga
31261 caactaggat gttagcttag aagcagctat tcattcaaag agtgcgtaat agctcactag
31321 tcgagtgacc ctgcgccgaa aatgtaccgg ggctaaaaca gtttaccgaa gctgtggatg
31381 acacaaaagt gtcatggtag gagagcgttc tatgtgtgaa gaaggtgtac cgtgaggagc
31441 gctggaacgc atagaagtga gaatgccggt atgagtagcg aaagacaggt gagaatcctg
31501 tccaccgtaa gactaaggtt tccaggggaa ggctcgtccg ccctgggtta gtcgggacct
31561 aaggagagac cgaaggtgt atccgatggc caacaggttg atattcctgt actagagtat
31621 atagtgatgg agggacgcag taggctaact aaaccggacg attggaagag tccggctaag
31681 cagtgaggtg taagatgagt caaatgctta tctttataac attgagctgt gatggggagc
31741 gaattttagt agcgaagtta gtgatgtcac actgccaaga aaagcttcta gcgtttaatg
31801 atactctacc cgtaccgcaa accgacacag gtagtcgagg cgagtagcct caggtgatcg
31861 agagaactct cgttaaggaa ctcggcaaaa tgacccgta acttcgggag aaggggtgct
31921 gacttaggtc agccgcagtg aataggccca agcaactgtt tatcaaaaac acagctctct
31981 gctaaatcgt aagatgatgt ataggggtg acgcctgccc ggtgctggaa ggttaagagg
32041 agggtttagc gcaagcgaag atctgaattg aagccccagt aaacggcggc cgtaactata
32101 acggtcctaa ggtagcgaaa ttccttgtcg ggtaagttcc gacccgcacg aaaggcgtaa
32161 tgatttgggc actgtctcaa cgagagactc ggtgaaattt tagtacctgt gaagatgcag
32221 gttacccgcg acaggacgga aagaccccat ggagctttac tgcagtttga tattgagtat
32281 ctgtaccaca tgtacaggat aggtaggagc cattgacttc gggacgccag tttcgaatga
32341 ggcgttgttg ggatactacc cttgtgttat ggctactcta acccagatag gttatcccta
32401 tcggagacag tgtctgacgg gcagtttgac tggggcggtc gcctcctaaa gagtaacgga
32461 ggcgcccaaa ggttccctca gattggttgg aaatcaatcg cagagtgtaa aggtataagg
32521 gagcttgact gcgagagcta caactcgagc agggacgaaa gtcgggctta gtgatccggt
32581 ggtaccgaat ggaagggcca tcgctcaacg gataaaagct accctgggga taacaggctt
32641 atctccccca agagttcaca tcgacgggga ggtttggcac ctcgatgtcg gctcgtcgca
32701 tcctggggct gtagtcggtc ccaagggttg ggctgttcgc ccattaaagc ggcacgcgag
32761 ctgggttcag aacgtcgtga gacagttcgg tccctatccg tcgcgggcgt aggaaatttg
32821 agaggatctg ctcctagtac gagaggacca gagtggactt accgctggtg taccagttgt
32881 cttgccaaag gcatcgctgg gtagctatgt agggaaggga taagcgctga aagcatctaa
32941 gtgcgaagcc cccctcaaga tgagatttcc catgatttta tatcagtaag agccctgaga
33001 gatgatcagg tagataggtt aggagtgtaa gtgtagcgat acatgtagcg gactaatact
33061 aatagctcga ggacttatcc aaaaagaaat attgacaacg ttacggattc ttgttagact
33121 atagatattc aatttttgagt gggttatgaa aatagcacat ttacaagtta agtgacgata
33181 gcctaggaga tacacctgta cccatgccga acacagcagt taagccctag aatgcctgat
33241 gtagttgggg gttgcccccct gtgagataag gtagtcgctt agcttaatga cacactcaat
33301 gggagtttag ctcagctggg agagcatctg ccttacaagc agagggtcag cggttcgatc
33361 ccgttaactc ccattttagc gggtgtagtt tagtggtaaa actacagcct tccaagctgt
33421 tgtcgcgagt tcgattctcg tcacccgctt tatagttttc ccaagctata tcaataaaag
33481 cttgggcgcg tagctcaggt ggttagagcg cacgcctgat aagcgtgagg tcggtggttc
33541 gagtccactc gtgcccatta tctataatta tattattatg gtccgttggt caaggggtta
33601 agacaccgcc ttttcacggc ggtaacacgg gttcgaatcc cgtacggact atattatatt
33661 tggaggatta cccaagtccg gctgaaggga acggtcttga aaaccgtcag gcgtgtaaaa
33721 gcgtgcgtgg gttcgaatcc cacatcctcc ttttaactat cgcgggatgg agcagttagg
33781 tagctcgtcg ggctcataac ccgaaggtcg taggttcaaa tcctgctccc gcaatacata
33841 agtatgtagt tgttggctcg gtagctcagt tggtagagca atggattgaa gctccatgtg
33901 tcggcggttc gattccgtct cgcgccatta aaatttaata ttttacggaa agatagcgaa
33961 gaggctaaac gcggcggact gtaaatccgc tccttcgggt tcgggggttc gaatccctct
34021 ctttccatcc taaacgggca tagtttaaag gtagaactaa ggtctccaaa accttcagtg
34081 tgggttcgat tcctactgcc cgtgttagaa atatggcggg tgtggtgaag tggttaacac
34141 atcagattgt ggctctgaca ttcgtgggtt cgattcccat cactcgccta ttttattggg
34201 gtatagccaa gcggtaaggc aagggacttt gactccctca tgcgttggtt cgaatccagc
34261 tacccccagtt taaatttat atttaaagcc ggcgtggcgg aattggcaga cgcgctggac
34321 tcaaaatcca gtgtccgcaa ggacgtgccg gttcgacccc ggccgccggt atacttgaaa
34381 aacaaggttt gtaaaccttg tttttttgttt tgatcttaag ctgtagctac gtagtacaat
34441 ctcttatatt actgataagg tctatttaat gcgcaagatt tgtggtatga tgaatatgat
34501 tgagtattga tgctttatgg gattaccggt aaggttttga aaaaggtttg tcactactag
34561 gtgctttttt agctatagaa agacagttat ggattgatgt attgtaacta atgttggagg
34621 ttaatggtgg ttgagttttg agatatttac actgataatc gggtggaaac tggttgggta
34681 tcgggtaatg gagtgtggtt cttcgtttaa gcaaggagat tatcgtttgg tggttcatat
34741 ttgcttgtta aatgttaggg atgagatgct gagtcagcaa ggccatgaag ataaagctga
34801 ctggccagag ccttgagatg tgacgtttgg tggaagtcct ttttggtgag atggcacagc
34861 atatagtaat attagatcct gaggaagaat tgggactttc attaggcttg actggggtat
34921 gacctcactt tacaattcat ttcgatgatg ggtttgatga tatgttttta gttcaggact
34981 ttgtagagtt ggagaatttg gttctttatg aggaagaagt gcaggtaatt cgttgagtca
35041 gtcgtgaaga tattttaggt atgattgatg aaggttcgtt cattccttat ctgaagtata
35101 aaataaattt gtgctttgag atggttggcc aatataaagt ccatcaatct tagaagtaat
```

```
35161 aatttttgaa ttttttctga ggtttgtgta tatttgatag tgtactgatg taagaagtaa
35221 ggagtactat gatggcaatc aatgagagag cttctgcaaa aatcaagtta ggccttgata
35281 ctaagaataa gcgatgagat ggttaccacg atttatcgat ggtcatgatg agtattgatc
35341 tgtgtgacta tgtgacggtt gaccatatag atgacaataa gattgtcttt gcctcaaact
35401 gtccgaaaat acctattaac taagataatg atgttttataa gatagttcag ctaatgaaac
35461 atcgatttca agttaaaaga ggagtttccg tttacttgga aaagcggatt cccatgtgtg
35521 ctggtatggg aggaggttct agcgatgctg ttactatcag agcattaaat cagttatggc
35581 tccttactct tagccgaaaa gatatgatgg atattggtat accgattggt agtgatgtgc
35641 cttattgctt gctttcaggt tgtgcccaag tcactggtaa aggtgaagtg gtttgtcgca
35701 ttttggggct gttatcgtct tgggtggttt tggttaaacc agattttggt atctcgactt
35761 gaacaatttt tctagatatt aattgtaaaa ccatttcaag agtgtctact actcatttgg
35821 ttgcggcgat tgaagcgggt aactataatg atgggatatt gactgaaatg aacaatttgc
35881 tggaagatat tttcattgcc aagcgaccct ttattcaaaa aataaaaagag aaaacactgc
35941 aagctggtgc tgctactact ttgatgacag gaagtggacc gactgttttt gctttgtgcc
36001 agaccgaaaa acaaactata atagtttaaa aggactttgc aaggaagttt ttaaggtgag
36061 aatgttgtaa tattttgttg ggattgcttc tttggaagct tcatgttata attaactggt
36121 taatgaaaga ggagatttat ggggacttta gaaaaaaaac ttgataactt agtaaatact
36181 attttattaa aagcagaaaa tcagcatgag ttattatttg gagcttgtca aagtgacgtt
36241 aagcttacta atacgcaaga acatatttta atgttactat ctcagcaacg tctcactaat
36301 acagatttgg ctaaggcatt aaatattagt caggcggcag taactaaggc tatcaagagt
36361 ttggtcaaac aagacatgct agcaggaact aaggatacgg ttgatgctag ggtgacttat
36421 tttgaattaa ccgagttagc taagcctatt gcatcagaac atacccatca tcatgatgaa
36481 actttaaatg tttacaaccg tttattacaa aaattctctg cgaaagaatt agagattgta
36541 gataagtttg taacagtttt tgctgaggaa ttagaagggt aatccatgag atacatatca
36601 gtggaaaatc tctcctttca atatgaaagt gagccagttt tagaagggat cacttatcat
36661 ttagatagtg gagaatttgt caccatgacc ggtgaaaatg gtgctgcaaa gtcaacctta
36721 ataaaagcaa ccttaggaat tttacaacca aaggctggac gagttactat tgctaaaaaa
36781 aataaagacg gtaaacaatt aagaattgct tacttgccgc agcaagtagc tagctttaac
36841 gctggttttc catccaccgt ttacgagttt gtcaaatcag gtcgctaccc acgtagtggt
36901 tggtttagac atttgaacaa acacgatgaa gagcatgtgc aagcaagctt agaagcagtc
36961 ggcatgtggg aaaaccgtca taagagaatt ggtagtttat caggtggtca aaaacaacgt
37021 gtggttattg cccgtatgtt tgcttctgac cctgatattt ttgtgctaga cgagccaaca
37081 acgggaatgg atagcggtac tactgatacc ttttatgaac tgatgcacca cagtgcacat
37141 caacatggga aatccgttct gatgattacc catgacccag aagaagtgaa ggcttatgct
37201 gatcggaaca ttcatttagt cagaaatcaa aaacttcctt ggcgttgttt caacattcat
37261 gaagttgaaa cagatgacga aaaaggaggt catggtcatg cttgatattt tatcctatga
37321 tttcatgcaa cgggcggtaa tggcggtagt tgccattagt atttttgctc cgatttttagg
37381 tattttcctt attttacgtc gtcaaagttt gatgagcgat accctagtc atgtttcttt
37441 ggctggggta gcgcttgggg tagttcttgg tatttcacca accatcacta ctattattgt
37501 tgtggtttta gctgctattt tgttagaata cctgcgtgta gtttacaaac actacatgga
37561 gatttcaacg gcgattttga tgtcacttgg cttggcccta tctctgatta ttatgagtaa
37621 gtcgcatagt tcatcaagca tgagtttaga acaatacctt tttggatcga tcatcacgat
37681 tagtatggaa caagttgtcg ccttgtttgc tattgctgcg attattttaa tcttgaccgt
37741 tctcttcatt agaccgatgt acattctgac ctttgatgaa gatactgctt ttgtagatgg
37801 tttgcccgtt cgcttgatgt ctgttctatt caatatcgtc actgggggttg ctattgcttt
37861 gaccattcca gcagcaggag cacttttggt ttctaccatt atggtcttgc cagcaagtat
37921 cgcaatgaga ttgggtaaaa actttaaaac agttatctta ctgggaattg tcatcggttt
37981 tagcggtatg ttatctggta ttttcttatc ttatttcttt gaaacgccag ctagtgccac
38041 tattaccatg attttcatta gcattttcct cttagttagt ctaggtggaa tgcttaaaaa
38101 acggttattt taataagaaa aatcctcaca tgtttaacat gtgaggattt atttataaat
38161 gctttaaaaa gggggcaagg tcccaatttt cttgattaat ggtgatgccc tcccaaaagc
38221 tatcattagt taaacgagga atcaaatgaa ggtgaaaatg agtcccctca tccatcaact
38281 ccttgtcatt gctgacgcta gtgacgcctg aaatgggaag gtgctgctct agcttagcaa
38341 ctagagcggc ttgtaagttg atgagatcat agcgcacttc ctttggtagt tgtgtcagac
38401 tagtgtaatg gtctttggaa atcagtaaaa ggtaccccct ttggatagga tcaatatcaa
38461 aaacaacctt gaaatattga ctttgagtca gtagctgatt tgctttgagc tgatggcaaa
38521 agatacattc tgtcataagt acatctcctt atgaaaaaac gagccagagc tcagctcgtt
38581 taatcggtta tctagtaagt gagaacagcg tatttttct taccgcggcg aataacggtt
38641 aattgatcat caattttatc atcattactt aattggtaat ctaaatcttg aatgcggtct
38701 ccgttaatgt agattgctcc attttgcacg tcttcacgcg cttggcgttt tgatggggaa
38761 atacctgcgg tgacaagcat gtcaacaagg ttaaggctgt cttctgattg aacgtgataa
38821 tttggtacat tgctcaatcc ttgttttaat tcattagcag aaagattttt gatgtttcca
38881 gcaaataact gctcggtaat gttaagagct tgtttataag cttcttcgcc atgaaccaag
38941 gtaactactt cgcgtgccaa ggttttttga gcgagacgct cgtgacgagc ggcattaaat
39001 tgactttcaa tttctgcaat ctcatctaga gataagaagg tgaagatttt caagaaacgc
39061 actgcatcat catccatgac atttaaccag aattggtaca tctcgtaagg agacgtctta
```

```
39121 tcggcatcaa gccagacagc attaccttct gatttaccga attttttccc ggttgagtca
39181 gtgatgagtg gtacagtcat gacgtgccca gtttatcag cctttttgcg gagcaattca
39241 gtaccagctg tcatattgcc ccactggtca gagccgccaa tttgtaaggt tacattatgc
39301 ttgtcattga gttcgtagaa gtcgtaaccc tgcatgattt ggtaagcaaa ctcagtgtaa
39361 gaaatgcctg tttcaatgcg tttttaaca gagtctttac tcatcatgta gttaacggtg
39421 aagtatttac cgacatcacg gaggaagtca ataaagctga tttgcgagaa ccagtcgtag
39481 ttgttgacaa gctctgcttt attatcacca ttttcaaaat caaggaaagt agacaactgc
39541 cctttaatct tgtcactcca ctccaaaact gtttctttgg tttgaaggct gcgctctgca
39601 tctttaaagg aaggatcacc aattaaacct gtggcaccac ccacaagagc gtaaggtttg
39661 tgccctgcta gttgcaagcg acgagatgtt aagatagcca ctagatggcc cagatgaagg
39721 ctgtcagcgg ttggatcata accggtataa taggatactt gcccttctgt taatgctttg
39781 acaagggctt gttcatcagt tgtttgaaag accaagccac gagctttgag ttcttcaaaa
39841 atattcatag gctttctcca tttcattat agtttcgaat cattatatca aaaaacgcta
39901 ctgctatgca agctttatca aagtttggta taatgataaa tgaggtattt tatggtgaaa
39961 tggaacacga aacaaaagcg tataagtcat caaagattag gtctcttgga tttgggggccg
40021 gtgctattac gtacgttgag actactgtct aactttttt atattgttat cttcctttt
40081 ggaatgatgg gatttggtat ggcatttggg tatttggcta gtcagattga atctgttaag
40141 gtaccaagta aagaaagttt agtcaaacaa gttgaatcat taacgatgat ttcgcaaatg
40201 aactattctg ataatagttt aatttctact ttagatacgg atttacttcg aacaccagta
40261 gctaatgatg cgatttcaga gaatatcaaa aaagctattg tatcaacaga agacgaacat
40321 tttcaagaac ataaaggtgt cgtgccaaaa gctgttttc gggcaacatt ggcttctgta
40381 ttgggatttg gagaagctag tggaggttcg accttaacac agcaattggt caaacaacaa
40441 gtttttgggag atgatcccac atttaagcgc aagtctaagg agatcgttta cgctcttgcc
40501 ttagagcgtt atatgtccaa agacaatatc ttatgtgatt atcttaatgt ttcaccttt
40561 ggtcgtaaca acaagggcca aaatattgct ggtgttgaag aagctgcgcg tggcattttt
40621 ggcgtttctg ccaaagattt aacggtgcca caggcagcat ttttggcggg gcttccgcag
40681 agtcctattg tttactctcc ttatttgtca acgggacaac tgaagtcaga aaaggacatg
40741 gcttatggca tcaagcgtca gcaaaatgtt ctctataaca tgtaccgtac aggtgttctg
40801 tctaaaaaag aatacgagga ctataaggct tatccgattc aaaaggattt tattcaaccg
40861 ggaagtgcaa tagtaaataa tcacgattac ctttattaca cggtgttagc ggatgctaaa
40921 aaagccatgt atagctattt gattaagcga gataaggtgt ctagtcgtga tttgaaaaat
40981 gacgagacta aggctgctta tgaagagaga gccttaacag aattgcaaca gggtggctat
41041 accatcacca caaccattaa taagcctatt tacaatgcga tgcagacagc ggcagctcag
41101 tttggtggct tgttagatga tggcactggt acagttcaaa tgggaaatgt cttgacagac
41161 aatgcgactg gtgctgtgtt aggttttgtt ggtggtagag attatgctct gaatcaaaat
41221 aatcatgctt tcaatacagt tagatcgcca ggttctagca ttaaaccgat aatcgcttat
41281 ggtcctgcta ttgatcaagg tttaatgggg agtgctagcg ttttgtctaa ttacccaaca
41341 acttactcga gtggccaaaa aatcatgcat gctgatagtg aaggaacagc catgatgcca
41401 cttcaagagg ccctaaatac ttcttggaat atcccagctt tttggacaca gaaattactg
41461 cgtgaaaaag gggtcgatgt cgaaaattat atgacaaaaa tgggttataa gattgcagac
41521 tactcgattg aaagtttacc tctaggggggc ggtattgaag tctcggttgc tcaacaaacc
41581 aatgcttacc aaatgctttc aaacaatggc ttatatcaaa agcaatatat tgtagataag
41641 attactgcta gcgatggtac agtcgtttac aaacatgaaa ataagccaat tcgtattttt
41701 tctgcagcaa cagctacgat tttacaagaa ttgttgagag gtccgattac ttcaggcgct
41761 acgactactt tcaagaaccg tttggcggct attaatccgt ggcttgctaa tgctgattgg
41821 attggtaaga ccggaacaac tgagaattat acggatgttt ggctagtcct gtctactcca
41881 aaagttacct taggcggttg ggcaggacat gatgacaata cctcattagc gccattaaca
41941 ggatataaca ataattctaa ttaccttgcc tatttagcta atgccattaa tcaggccgat
42001 cccaatgtta ttggagtagg gcaacgtttc aacttagatc caggagtcat taaggcgaat
42061 gtcttgaagt caacaggttt acaaccagga actgttaatg tcaatggaca tacttttct
42121 gttggtggag aaatgaccac cagtctatgg tcccaaaaag gaccggggggc tatgacttac
42181 cgatttgcta ttggtggcac ggatgccgat tatcaaaaag cctggggggaa cttcgggttc
42241 agaaaaaatt aggttgccat ttatcgataa aaagggtata atagtaataa ctatttgtcg
42301 tccaatctag ctgaaatatt gtccagttag gaagaacagc agttaaatca cactgataaa
42361 gtcagattta gctgctcttt ttgtgtctat ttttagaaaa gatagggttt gtaacctata
42421 tttaaatatt ctaaaaatta acatttaggg caaatgataa cttagttgcg atttgctgaa
42481 acagcaaagc ttaaatagaa gaaggagcta aaaacttggc aggacatgaa gttcgatacg
42541 gaaaacaccg tacacgtcgt agcttttcaa gaatcaaaga agttcttgat ttaccaaatt
42601 tgattgaaat tcaaactgac tcattccaag atttcctcga ttcaggtttg aaagaagtat
42661 ttgaagatgt acttcctatt tcaaacttta cggatactat ggaacttgaa tttgttggtt
42721 acgaatttaa agaacctaaa tatacccttg aagaagctcg tatccacgat gcaagttatt
42781 ctgcaccaat ctttgttacc ttccgtttgg tcaataaaga aactggtgag attaaaactc
42841 aagaagtctt ctttggtgat ttcccaatca tgacggaaat gggtacctt attatcaatg
42901 gtggtgaacg tatcatcgtt tctcagttgg tgcgttctcc aggtgtttat ttcaacgata
42961 aagttgataa aaacggtaaa gttggttacg gatcaacagt gattcctaac cgtgggggctt
43021 ggttggaatt agagactgac tcaaaagaca ttgcctacac tcgtattgac cgtaccgta
```

```
43081 agattccatt cacaaccttg gttcgtgccc ttggtttctc aggtgatgat gaaattgttg
43141 atatctttgg tgaaagcgac cttgttcgta ataccattga aaaagacatt cacaaaaatc
43201 caagtgattc tcgtacagac gaagccctta aagaaattta cgagcgtctt cgtccaggtg
43261 agccaaaaac tgcagatagc tctcgtagtc ttttgattgc gcgtttcttt gatgcacgtc
43321 gttacgattt ggctgcggtt ggtcgttaca aagtgaacaa aaaacttaat atcaagactc
43381 gtcttttgaa ccaaatcatt gctgaaaacc ttgtggatgc tgaaactggc gaaattttgg
43441 tagaagctgg aactgagatg actcgtagcg tcatcgaatc catcgaagaa caccttgacg
43501 gtgatttgaa caagtttgtt tacacaccaa atgattacgc tgtggttact gaaccagttg
43561 tccttcaaaa gttcaaggtt gtgtcaccaa ttgatcctga tcgtgtagta actattgttg
43621 gtaatgccaa tccagatgat aaggttcgtg cattgacacc tgctgatatt ttggcagaaa
43681 tgtcttactt cttgaacctt gctgaaggtc ttggaaaagt tgacgatatt gatcacttgg
43741 gtaaccgtcg tatccgtgcc gttggtgaat tgcttgccaa ccaattccgc atcggtcttg
43801 ctcgtatgga gcgtaacgtg cgtgagcgta tgtctgttca agacaacgat gtgttaacac
43861 cacaacaaat catcaatatc cgtcctgtca cagcagctgt caaagaattc ttcggttcgt
43921 ctcagttgtc acagttcatg gaccaacaca acccattgtc agagttgtct cacaaacgtc
43981 gtttatctgc cttaggacct ggtggtttga cacgtgaccg tgctggttat gaggttcgtg
44041 acgtgcatta cacgcactat ggccgtatgt gtccgattga aacacctgaa ggaccaaaca
44101 ttggtttgat taataacttg tcttcatttg gacatcttaa taaatatggt ttcatccaaa
44161 caccttaccg taaggttgac cgtgcgactg gtagggtaac taacgaaatt gtttggttga
44221 ctgctgatga agaagacgag tacacagttg cacaggccaa ttcgaaacta aacgaagatg
44281 gcacttttgc tgaagaaatc gttatgggtc gtcaccaagg taataaccaa gaattttctg
44341 caagtgttgt tgatttcgtt gacgtttccc ctaaacaggt agttgctgtt gcgacggcat
44401 gtattccttt cttggaaaac gatgactcca accgtgccct catgggtgcc aacatgcaac
44461 gtcaggctgt gccattgatt gatccaaaag caccatatgt tggtactggt atggaatatc
44521 aagctgccca tgactcaggc gctgcggtga ttgctcagca caatggtaaa gttgtctttt
44581 ctgatgctga aaaagtggaa atccgtcgtc aagatggctc gcttgatgtt taccacatta
44641 ccaaattccg tcgttcaaac tcaggaacag cctataacca acgcaccctt gttaaagtag
44701 gagacattgt tgaaaaaggt gatttcatcg ctgatggacc ttctatggaa aatggtgaaa
44761 tggctcttgg acaaaaccca gtcgttgctt acatgacttg ggaaggttat aactttgagg
44821 atgccgttat catgagtgag cgccttgtga aagaagatgt ctacacatct gttcacttgg
44881 aagaattcga atctgaaacg cgtgatacaa aacttggccc tgaagaaatc actcgggaaa
44941 tcccaaatgt tggtgaagaa gccctcaaag accttgacga aatgggcatt atccgtatcg
45001 gtgctgaggt taaagaaggc gacatcttag taggtaaagt cacacctaaa ggtgaaaaag
45061 acctttctgc tgaagaacgt ttacttcacg ccatctttgg ggataaatcg cgtgaagtgc
45121 gtgatacctc acttcgtgtc cctcacggtg gtgatggtat cgttcgtgat gtgaaaatct
45181 ttacacgcgc taacggcgat gaattgcaat caggtgttaa tatgcttgtg cgtgtttaca
45241 tcgctcaaaa acgtaaaatc aaggtcggag ataaaatggc cggtcgtcac ggaaacaagg
45301 gtgtcgtttc acgtattgta ccagttgaag acatgccata ccttccagac ggaacaccag
45361 ttgacatcat gttgaaccct cttggggtgc catcacggat gaatattggt caggttatgg
45421 aacttcacct tggtatggct gctcgtaatc ttggcattca cattgcaaca cctgtctttg
45481 acggggcttc atcagaagac ctttgggaca ctgttcgtga agctggtatg gatagcgatg
45541 ctaagacggt ccttttatgat ggacgtactg gtgaaccatt tgacaaccgt gtatccgttg
45601 gtgtcatgta tatgatcaaa cttcaccaca tggttgatga taaacttcat gcccgttctg
45661 taggaccata ctcacttgtt acccaacagc cacttggtgg taaagctcaa tttggtggac
45721 aacgttttgg tgagatggag gtttgggccc ttgaagctta tggtgcatca aatgttcttc
45781 aagaaatctt gacctacaag tcggatgacg tcacaggacg tttgaaagcc tatgaagcga
45841 ttactaaagg taaaccaatt ccaaaaccag gtgtaccaga atccttccgt gttcttgtaa
45901 aagaattgca atcgcttggt cttgatatgc gtgtgcttga cgaggatgat aatgaagtgg
45961 aacttcgtga tcttgatgaa ggtgaagacg atgatattat gcatgttgac gatctcgaga
46021 aggcacgtga aaaacaagct caagaaaccc aagaagtttc tgaaacaact gacgaaaaat
46081 aagcaatcaa ttcttattaa ataattattt actggtctgg ggcaaaggcc ccaggaactg
46141 gtaaagtcat caaaggcaga aaggtaaaac tagtggttga cgtaaatcgt tttaaaagta
46201 tgcaaatcac attagcctca ccaagtaagg tccgttcatg gtcttatggt gaagttaaaa
46261 aacctgaaac aatcaactac cgtacattaa aaccagaacg tgaaggactc tttgacgaag
46321 tcatctttgg tccaacaaaa gactgggaat gtgcgtgtgg taagtacaaa cgtatccgtt
46381 ataaaggggat cgtttgtgac cgctgtgggg ttgaggtaac tcgtgctaaa gtacgtcgtg
46441 aacgtatggg tcacattgag ttaaaagctc ctgtatcaca tatctggtat ttcaaaggga
46501 ttccatctcg tatgggattg actcttgata tgagtcctcg tgcccttgaa gaagtgatct
46561 attttgcggc ttatgtggtc attgatccaa aagatacacc gcttgaacca aaatcattat
46621 taacagaacg tgaataccgt gaaaaactac aagagtatgg tcatgggtca tttgtcgcta
46681 agatgggtgc tgaagccatt caagatctct tgaaacgtgt ggacttggca gctgaaatcg
46741 ctgaattaaa agaagagttg aaatctgctt ctggtcaaaa acggattaaa gcagttcgtc
46801 gtttagacgt ccttgatgcc tttaacaaat ctggaaataa accagaatgg atggttctta
46861 acatcctgcc ggttattcca ccagatcttc gtccgatggt tcaattggat ggtggtcgtt
46921 ttgcggcatc agacttgaat gacttgtacc gtcgtgtgat taaccgtaat aaccgtttgg
46981 cacgtttgtt agaacttaat gcccctggca tcattgttca aaatgaaaaa cgaatgcttc
```

```
47041 aagaagccgt tgatgctttg attgataatg gtcgtcgtgg tcgtccaatc actggaccag
47101 gaagtcgtcc attgaaatca ttgagccaca tgcttaaagg taaacaaggg cgtttccgtc
47161 aaaacttgct tggtaaacgt gtagacttct ctggacgttc cgttatcgct gttggtccaa
47221 cccttaaaat gtatcaatgt ggtgtcccac gtgaaatggc tatcgagctt tttaaaccat
47281 ttgtaatgcg cgaaattgtt gccaaagaat atgctggtaa cgttaaagcc gctaaacgta
47341 tggttgaacg tggcgacgaa cgcatctggg atatcttaga agaagttatc aaagaacacc
47401 cagtcctact taaccgcgca ccgactcttc acagacttgg tattcaggct tttgaaccgg
47461 ttcttattga cggtaaggca cttcgtcttc acccacttgt gtgtgaggcc tacaatgccg
47521 acttcgatgg agaccaaatg gccatccacg tgccactttc agaagaagca caagctgaag
47581 ctcgtctttt gatgcttgct gcagagcaca tcttgaaccc taaagatggt aaaccagttg
47641 ttaccccatc tcaggatatg gttcttggta actactatct tacgatggaa gatgctggtc
47701 gcgaaggcga aggcatgatc ttcaaggata aagacgaagc tgtgatggca tatcgtaatg
47761 gctatgctca tcttcatagt cgtgtgggta ttgctgttga cagcatgcca aacaaacctt
47821 ggaaagacag tcaaagacat aaaatcatgg tgacaactgt tggtaagatt ctctttaacg
47881 acatcatgcc agaggacctt ccttacctcc aagagccaaa caatgccaac ttgacagaag
47941 gaacacctga taaatacttc cttgaacctg gtcaagacat ccaagaagtg attgacggct
48001 tagacatcaa tgtgccattt aagaagaaaa acctcggtaa catcattgcg gaaaccttca
48061 aacgtttccg tacaacagaa acatcagcct tccttgaccg cttgaaagac cttggttact
48121 accattcaac ccttgctggt ttgacagtgg gtatcgctga cattcctgtt attgataata
48181 aagctgaaat cattgatgct gctcaccatc gtgttgaaga aattaacaaa gccttccgtc
48241 gtggtttgat gacagatgat gaccgttatg ttgccgttac aacaacatgg cgtgaagcta
48301 aagaagccct tgaaaaacgt ctaattgaaa cacaagatcc taagaaccca atcgttatga
48361 tgatggactc aggtgcccgt ggtaacatct ctaacttctc acagcttgcg ggtatgcgtg
48421 gtttgatggc tgctcctaac ggacgcatca tggaacttcc tatcttgtca aacttccgtg
48481 aaggtttgag cgttttggaa atgttcttct caacccacgg tgcacgtaaa gggatgaccg
48541 atacggccct taaaacagcc gactcaggtt atcttactcg tcgtttggtt gacgttgccc
48601 aagatgttat cattcgtgag gacgattgtg gcactgatcg tggtcttctt atccgtgcta
48661 ttacagatgg taaagaagtt accgaaacgc ttgaagtgcg tcttcaaggt cgttacacac
48721 gtaaatcagt caaacaccct gaaactggtg aagtcttgat tggtgctgac caattaatca
48781 ctgaagacat ggctcgtaag attgttgatg caggtgttga agaagtgacc attcgttctg
48841 tctttacctg tgcgactcgt catggtgtct gccgtcactg ttatggtatc aacttggcaa
48901 ctggtgatgc tgttgaagtg ggtgaagcag ttggtactat tgctgcccaa tctatcggtg
48961 agcctggtac tcagcttacc atgcgtacct tccacacggg tggtgtagcc tcaaataccg
49021 atatcacccca gggtcttcct cgtattcaag agatctttga agcacgtaat cctaaagggg
49081 aagcggtcat tactgaagtg aaagggaatg tcgtcgagat tgaagaagat gcgtcaactc
49141 gtaccaagaa agtctacgtt caaggaaaaa ctggcatggg cgaatatgtc gtaccattta
49201 cagcacgtat gaaagttgaa gttggcgacg aagttaatcg cggagctgcc cttacagaag
49261 ggtcaattca accgaaacgt ctccttgaag tgcgtgatac cttgtcagtt gaaacgtacc
49321 ttcttgcaga agtacaaaaa gtttaccgta gccaaggggt agaaatcgga gacaaacacg
49381 ttgaggtaat ggttcgccaa atgcttcgta aagttcgtgt catggatcca ggtgatacag
49441 acctccttcc aggtacactt atggatattt ctgatttcac agatgctaac aaagatattg
49501 ttatctctgg tggtattcct gcgacatctc gtcctgttct tatgggtatt actaaggctt
49561 cccttgaaac caattccttc ttatcagctg catccttcca agaaacaact cgtgttctta
49621 cagatgctgc tatccgtggt aagaaagacc acttacttgg tcttaaagaa aatgttatca
49681 ttggtaaaat catcccagca ggtactggta tggcgcgcta ccgtaacatt gaaccacaag
49741 cgatgaatga gattgaagtg attgatcata cagaagtctc agcagaagca gaataatctc
49801 atgaaagagt ccttaggggc tctttttttgt ctgagtttgt tggcagtaaa aagcattgac
49861 aatcagtctt agtcccaatg agcagatgtt tttcaaaata cttatgatttt agctataata
49921 atgcataaga ggaatgggta atgtgttatg tatcaagtaa ttaaaatgta tggtgattgg
49981 gagccttggt ggttcatcga tggatggcaa gacgatatta tagatgagca acaatttagt
50041 gactggcaag aagcgcttga ttattttaat caagaatggc agcgcatgaa agctattttt
50101 cctagttatc atagccaaaa gaatttgtta gctacttttt gggaaaaaga agataaaaga
50161 tggtgcgagg actgtgacga agatttgcag cagtttcatt ctcttttact ccttaaaaat
50221 aaagatattg taccaagcaa taattatatc cctgaatttg aacaacgaaa tgattcacca
50281 caggtagctt atctttgcaa gttaaacctt taagtgtttg ttaaaaacaa aataagttaa
50341 aagaaaatat cacttcttat gatattttct tttttgttt acgaataaa
//
```